

FLORIDA HIGHWAYS

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No. 7

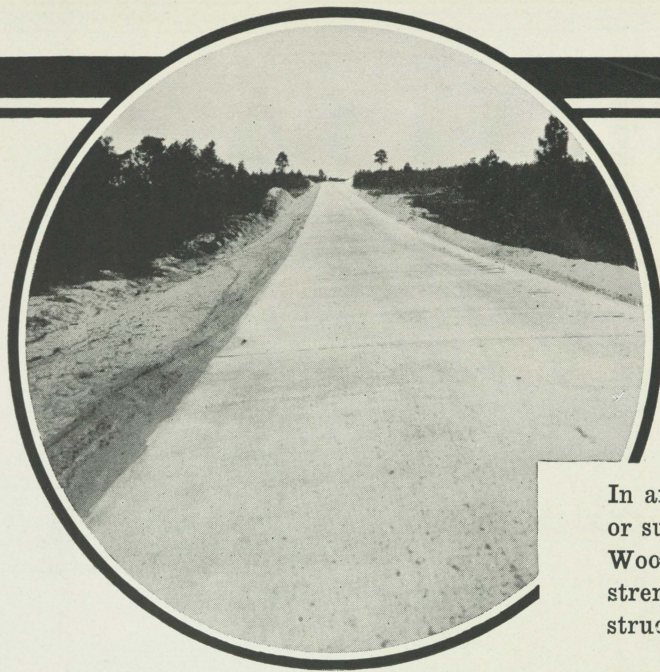


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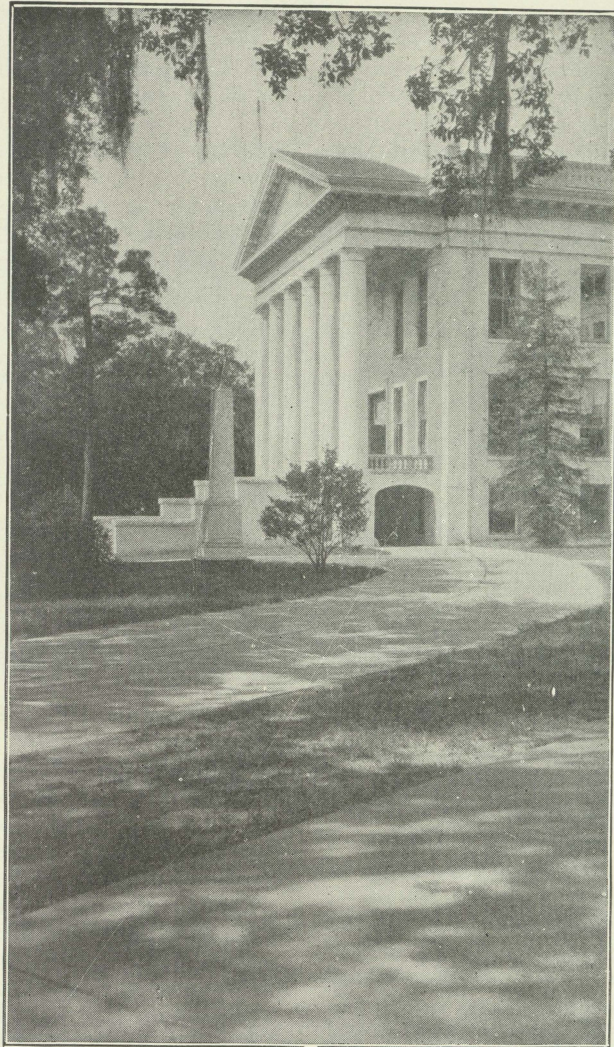
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F L O R I D A

Vol. VII
No. 7



H I G H W A Y S

JULY
1930

Transactions of the Third Quarterly Meeting of the State Road Department for the Year 1930

THE Third Quarterly meeting of the State Road Department for the year 1930 was begun and held in the offices of the Department, in Tallahassee, July 17, 1930, with the following members present: Robert W. Bentley, Chairman; W. A. Shands, Ernest R. Graham, Mallie Martin and George B. Hills. B. M. Duncan, State Highway Engineer, B. A. Meginniss, Attorney for the Department, Karl Roesch, Secretary, and H. J. Morrison, Highway Engineer for the U. S. Bureau of Public Roads, were also in attendance.

REPORT OF CHAIRMAN

The Chairman submitted his usual report of the actions and doings of the Department since last it met, which report is as follows:

To the Members of the State Road Department:
Gentlemen:

I shall report briefly concerning matters of consequence transpiring since our June meeting in Tampa.

Acting upon instructions from the Board, the chairman effected disposal at private sale of \$14,000 of the \$75,000 of Dixie County time warrants at 92, to J. H. Scales of Perry. The sale did not include the \$5,000 worth maturing July 1, 1930, which has been paid off by Dixie County.

Designation of a route from Tallahassee to St. Petersburg for U. S. Numbered Highway 19 has been announced by the American Association of State Highway Officials. This is a lengthening of U. S. 19 which begins at Erie, Pa. The new mileage is over State Highway 19 from Tallahassee to Williston; thence over State 5—U. S. 41—to Brooksville; thence over State 15 to St. Petersburg. Request for

this addition to U. S. 19 was made by the State Road Department some time ago.

Approving opinion of Thomson, Wood & Hoffman, bond attorneys, has been given on the Taylor County bond issue of \$116,000 for State Road No. 19, and the bonds have been turned over to us. Within a few days the State treasury will purchase \$50,000 of these 5% bonds, at a price that will yield the State funds 6% interest, which is a legal prerequisite to such investment by the State. Preliminary work which precedes letting of contract is well in hand.

No tablet or marker has been provided for Edison Bridge across the Caloosahatchee River, Fort Myers, on the Tamiami Trail. The chairman recommends that the Board instruct him to arrange for a bronze tablet, suitably inscribed, for this bridge. Also, a similar tablet to be placed on Barron G. Collier bridge at Punta Gorda.

Separate reports will be made to the Board regarding contract for projects 500-B, 500-C and 515, Road 20, Bay and Jackson counties, and concerning the halting of work on Project 70, the bridge at Punta Gorda.

Sincerely yours,
ROBERT W. BENTLEY,
Chairman.

St. Johns County—Road 47

A delegation from St. Johns County, composed of L. A. Braswell, G. W. Lee, H. H. Bailey and Chris Stanton of Hastings, appeared before the Department and requested that that portion of State Road 47 between Spuds and Toco be put under construction as early as possible. The request was taken under advisement.

Road at Florida A. and M. College and Extension of Road 10 From Wakulla Station to St. Marks

Senator W. C. Hodges appeared before the Department and urged the early construction of the extension of State Road 10 from Wakulla Station to St. Marks, and the construction of the road from State Road 10 to and through the grounds of the Florida Agricultural and Mechanical College, near Tallahassee, as authorized by the last session of the legislature.

As to the extension of State Road 10 he was advised by the Chairman that a survey had been made and that the Department will commence construction as soon as possible.

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That the Department do proceed to construct and hard-surface a road from State Road 10 south of Tallahassee to the west boundary line of the property of the Florida Agricultural and Mechanical College, and that all of the project authorized by the legislature be also put under construction if it is found possible to complete arrangements for the construction of that portion running north along the said west boundary line of said school property.

Project 50-C

Mr. R. L. Anderson of Jacksonville, representing the Union Indemnity Company, appeared before the Department and asked that the Department release to his client the remainder of the final estimate due on Project 50-C, which was completed by Union Indemnity Company after default by the contractor. Mr. Anderson stated that if the Department would grant this request his company would execute and

file with the Department an additional bond, conditioned to protect claimants and to save the Department harmless on account of the release of said funds.

On motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That final estimate on Project 50-C be paid to Union Indemnity Company when said Union Indemnity Company shall have filed with the Department a good and sufficient bond, conditioned to protect claimants and to save the Department harmless on account of said payment, said bond to be in a form satisfactory to the Attorney for this Department.

Road 3—Putnam and Seminole Counties

A delegation representing State Road 3 Improvement Association and comprising the following: Earl Brown, DeLand; Fred Williams, Sanford; Senator W. F. Glynn, Crescent City; Harry Patworth, Sanford; H. J. Lehman, Mayor of Sanford; S. O. Shinholser, Sanford; Judge E. L. Poe, DeLand, and Fred Ward, Winter Park, presented to the Department two requests with reference to State Road 3:

(1) That the Department proceed to the immediate construction of the bridge across Dunn's Creek; (2) That Road 3 be constructed along Lake Monroe at Sanford in order to avoid railroad grade crossing.

On motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted.

BE IT RESOLVED, That the Chairman and Engineer be requested to proceed immediately to secure the necessary War Department permit and complete plans and specifications for the construction of the Dunn's Creek bridge, Road 3, with a view to advertising for bids for the construction of same, returnable at the October meeting.

With reference to the route along Lake Monroe at Sanford, the Chairman stated that the Department is endeavoring to work out with the federal government a plan whereby this improvement may be placed in the 1931 budget. Mr. Brown stated that his Association will undertake to acquire the right of way necessary in this program.

Upon motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the State Road Department do proceed to make an investigation of State Road 3 along Lake Monroe in Sanford, to acquire all such facts as may be necessary to give the proposition proper study with a view to placing same in next year's budget.

BE IT FURTHER RESOLVED, That Seminole County be and it is requested to have its grading contract on such project completed on the basis of inclusion of this work in the Department's budget for 1931.

Orange County—Road 22

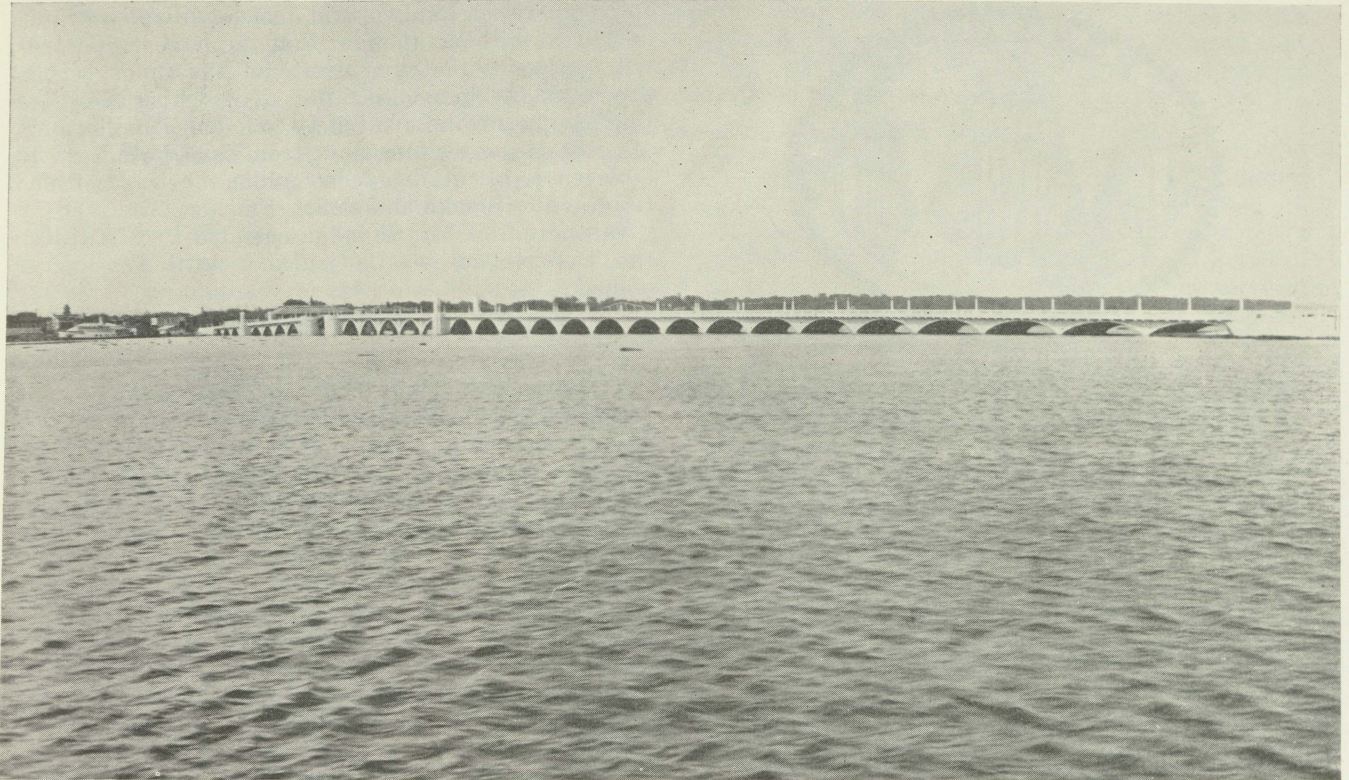
Mr. Fred Ward of Winter Park presented to the Department a request that the state take over for maintenance Road 22 in Orange County.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That this Department do take over for maintenance that portion of State Road 22 which lies in Orange County.

Orange County—Road 2

Mr. Fred Ward of Winter Park also requested the Department to widen Road 2 between the city limits of Orlando and the Bear Head road to a



Bridge across St. Johns River at Palatka—Built by County.

width of 20 feet. He was informed that this request would be given consideration.

Collier County—Road 164

Messrs. W. L. Clarke, Jr. and A. Carson presented to the Department a request that the state take over for maintenance Road 164 (formerly known as Road 26-A) from Everglades to the Hendry County line; or, if the Department can not grant this request at the present time that it take over that section between Everglades and Carnestown. The Chairman recommended that the latter request be granted, whereupon, the following resolution, proposed by Mr. Bentley and seconded by Mr. Hills, was adopted:

BE IT RESOLVED, That this Department do take over for maintenance that section of Road 164 (formerly known as Road 26-A) between Everglades and Carnestown.

Duval County—Road 78

Colonel J. C. Stehlin appeared before the Department to ask that assurance be given that State Road 78 will be completed. He was advised that the Department regards the paving of this road between South Jacksonville and the city limits of St. Augustine as a mandatory requirement of the legislature and that there has never been any thought of abandoning work on the road.

Duval County—State Roads 1 and 3

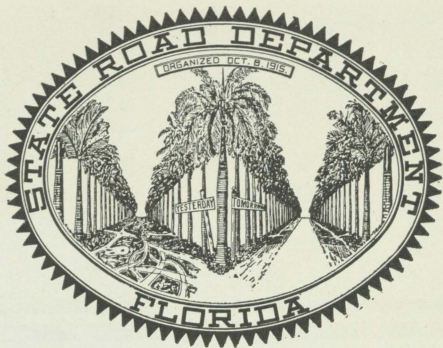
Messrs. H. J. Redavats and William P. Belote, County Commissioners, F. M. Edwards, County Engineer, and J. A. Nelson appeared before the Department with further reference to the widening of State Road 1 between Baldwin and Jacksonville, and State Road 3 between Trout River bridge and the municipal airport. Mr. Redavats stated that in his judgment it is grossly unfair to the taxpayers of Duval County to ask that the county secure right of way for the widening of these projects to 40 feet

of paving, with a 20-foot park way between 20-foot paved sections, especially in view of the inflated values which have been placed on these lands since the Department's program was announced. The delegation accordingly asked that the Department's plan for widening be modified to provide for an extension of 2 feet on each side of the present paving and the provision of the necessary width of shoulder. Mr. Hills discussing the proposition, suggested with respect to Road 3 that from Trout River to a point approximately 800 feet south of Hecksher Drive it be widened to a width of not less than 24 feet, or 30 feet if possible, and that for the remainder of the project the width be 40 feet, using the present right of way with such additions as may be necessary to protect the road. After full discussion of the matter, the following resolution, on motion of Mr. Hills, seconded by Mr. Graham, was duly adopted:

BE IT RESOLVED, That this Department do prepare plans and specifications and advertise for bids for the widening of State Road 3 between the Trout River bridge and the Jacksonville municipal airport, using the present right of way and on the basis of widening the same to a width of not less than 24 feet nor more than 30 feet, between Trout River and a point approximately 800 feet south of Hecksher Drive, and to a width of 40 feet for the remainder of the distance. It is understood that the County of Duval and the City of Jacksonville will provide the right of way necessary to protect the road so widened when requested to do so.

After full discussion of the widening program on Road 1, the following resolution, on motion of Mr. Hills, seconded by Mr. Graham, was adopted:

BE IT RESOLVED, That the State Road Department do proceed as soon as it can secure the necessary right of way and borrow pits to widen State



Florida Highways

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PERSONNEL OF DEPARTMENT

ROBERT W. BENTLEY (*Bradenton*), *Chairman*
(*Official Residence, Tallahassee.*)

W. A. SHANDS, <i>Gainesville</i>	} <i>Members.</i>
MALLIE MARTIN, <i>Crestview</i>	
GEORGE B. HILLS, <i>Jacksonville</i>	
ERNEST R. GRAHAM, <i>Pennsuco</i>	
KARL ROESCH, <i>Tallahassee, Secretary</i>	

PERSONNEL OF EMPLOYEES IN GENERAL CHARGE OF THE WORK OF THE DEPARTMENT

Engineering Division

B. M. Duncan, TallahasseeState Highway Engineer
L. K. Cannon, Tallahassee....Ass't. State Highway Engineer
W. I. Nolen, Tallahassee.....Bridge Engineer
H. C. Weathers, Gainesville.....Testing Engineer
F. W. Berry, Jr., Tallahassee.....Office Engineer
W. L. Thorpe, Gainesville.....Supt. of Equipment
E. K. Fogg, Pensacola.....1st Division
Counties—Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf,
Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa
Rosa, Wakulla, Walton, Washington.

M. P. Philips, Lake City.....2nd Division
Counties—Baker, Bradford, Clay, Columbia, Dixie, Duval, Ham-
ilton, Lafayette, Madison, Nassau, St. Johns, Suwannee, Tay-
lor, Union.

R. L. Bow, West Palm Beach.....3rd Division
Counties—Brevard, Broward, Collier, Dade, Glades, Hendry, Indian
River, Lee, Martin, Monroe, Okeechobee, Palm Beach, St. Lucie.

L. B. Thrasher, Ocala.....4th Division
Counties—Alachua, Citrus, Flagler, Gilchrist, Herndando, Lake,
Levy, Marion, Orange, Putnam, Seminole, Sumter, Volusia.

R. K. Van Camp, Lakeland.....5th Division
Counties—Charlotte, Desoto, Hardee, Highlands, Hillsborough,
Manatee, Osceola, Pasco, Pinellas, Polk, Sarasota.

Auditing Division

S. L. Walters, Tallahassee.....Auditor

B. A. Meginniss, Attorney for the Department,
Editor and Business Manager.

Volume VII July, 1930 Number 7

Road 1 between Baldwin and Jacksonville to a width of 20 feet with the thought that the next legislature will authorize the expenditure of the funds which are saved by this modification of widening plans to the paving of the road between Jacksonville and Maxville, in order to remove from said State Road 1 between Baldwin and Jacksonville the traffic from Gainesville, Starke and South Florida.

On motion of Mr. Shands, seconded by Mr. Hills, the Department was adjourned until two-thirty o'clock.

AFTERNOON SESSION, 2:30 O'CLOCK

Present as at morning session.

Project 70, Road 5—Peace River Bridge

The Chairman directed the attention of the members to the official certificate of the State Highway Engineer dated July 14, 1930, that there is neglect, delay and default in the contract entered into between Raymond Concrete Pile Company and the Department for the construction of the Peace River Bridge. He stated that representatives of the contractor had been invited to be present and discuss this matter before the Department takes action upon the Engineer's certificate. Messrs. H. A. Butler of New York, Judge O. K. Reaves of Tampa, George P. Morrill of Miami, and R. E. Colvin, Superintendent, of Punta Gorda, were present as representatives of Raymond Concrete Pile Company. After some discussion of the matter there was drafted a form of resolution which the members indicated might be adopted if satisfactory to the contractor, and representatives of the contractor were asked to study the same and indicate their reaction later this afternoon. Whereupon, the representatives of the Pile Company retired to consider the tentative proposal referred to, copy of which will be found in the files of the Department on this project.

Projects 500-B, 500-C and 515—Road 20

Mr. A. M. Lewis, representing Marianna Lime Products Company, came before the Department to further discuss the award of contract to his firm for furnishing rock and laying base on Projects 500-B, 500-C and 515 in Bay and Jackson counties. The Chairman made a statement of the actions of himself and the State Highway Engineer in pursuance of a resolution adopted at the meeting in Tampa last month, directing them to secure satisfactory evidence of the presence of specification rock in the pits of the Marianna Lime Products Company in ample quantity to carry out the terms of the proposed contract.

Mr. Hills made a motion that contract be awarded to Marianna Lime Products Company, to which motion, however, there was no second. Thereupon it was agreed that the further consideration of this matter be postponed until ten o'clock tomorrow morning.

At this juncture the Department heard Mr. Carl Robinson, representative of Florida Basic Rock Company, on the subject of lime rock in West Florida.

Hillsborough County

Messrs. W. T. Williams, Chairman, J. N. Holmes, J. T. Gunn and J. W. Lester, county commissioners, and A. B. Pimm, county engineer, appeared before the Department to make certain inquiries and requests. They sought information as to when the state will begin maintenance on Road 23, and were informed that the Department is now assembling its

crew for that purpose. They also asked as to the contemplated width of Road 5 in Sulphur Springs and were informed that the Department expects to provide a pavement from curb to curb, probably on the basis of using its standard pavement of 20 feet in the material and supplementing same on each side by the use of salvaged asphalt blocks.

They also desired information as to the Department's plan with reference to an overhead crossing at Bruen, and were informed that this matter has not yet been definitely worked out, but that as soon as the Department has adequate information they will be advised on the subject.

Lafayette County—Road 5-A

Messrs. F. P. Parker and C. W. Edwards presented to the Department a request that advertisement for bids be started for the paving of that portion of State Road 5-A between Mayo and the Taylor County line. The request was taken under advisement.

Lake County

Mr. Douglas Igou of Lake County requested information as to the progress of the Department's plans for the construction of State Road 2 between Tavares and Mount Dora and the connection from Eustis to Mount Dora. He was informed that the entire right of way between Tavares and Mount Dora has not yet been secured, and that as to the road between Eustis and Mount Dora, this is not in the present year's budget.

Traffic Lane Marker

Messrs. L. K. Nevin and Douglas Igou presented to the Department the merits of a patented center line road marker of rubber, product of the Bradley Road Marking Company. Mr. Nevin asked that the Department place with him an order for 25,000 feet, at \$2.00 per lineal foot, the same to be used as and when required by the Department and the order to be subject to cancellation at any time. He was informed that his request would be given consideration.

Pinellas County

Messrs. C. E. Burleson, County Engineer, M. B. Thayer and C. R. Carter, County Commissioners, and Karl B. O'Quinn, Clerk Circuit Court, comprised a delegation from Pinellas County which presented certain requests to the Department. These gentlemen requested that new surface treatment be applied to Road 15 from Clearwater north to the Pasco County line. They were informed that the present crew which the Department has engaged in re-treating roads will probably be moved on to this section in the near future. They also requested that the other state roads in Pinellas County be likewise treated, namely Road 17, Road 15 south of Clearwater to St. Petersburg, and Road 64 to the Gandy bridge.

On motion of Mr. Bentley, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That this Department does declare that it is in sympathy with the request of the representatives of Pinellas County to re-surface the state roads in said county; and

BE IT FURTHER RESOLVED, That the Chairman be authorized to proceed to have the said work done whenever he shall find that the Department has available funds for that purpose.

The delegation also, at the suggestion of the Chairman, called attention to the traffic hazard which is caused by the narrowness of the road be-

tween Largo and Clearwater, and asked that this road be widened. They were likewise assured that the Department is in full sympathy with this request and will do this work as soon as it possibly can.

Polk County—Roads 17 and 2

Mr. J. O. Singletary, County Commissioner, and Mr. M. D. Wilson, County Attorney of Polk County, appeared before the Department and requested information as to when the Department expects to let a contract for the completion of Road 17 between Haines City and Auburndale. They were advised that the Department can probably get this ready for the October letting.

Upon motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the Chairman be and he is hereby authorized to advertise for bids returnable at the October meeting, for the construction of a 20-foot concrete pavement on Road 17 between Haines City and Auburndale.

The same delegation requested information as to when the Department expects to let a contract for the completion of Road 2 between Fort Meade and Bowling Green, and were advised that this contract would be advertised later in the year.

Project 70—Road 5—Peace River Bridge

Representatives of Raymond Concrete Pile Company again appeared before the Department, and in lieu of the proposal tentatively submitted by the Department, presented a letter stating a proposal therein, which letter bearing date of July 17, 1930, appears in the files of the Department on this project.

On motion of Mr. Graham, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That the proposal this day submitted by Raymond Concrete Pile Company is not acceptable to this Department and that they be requested to indicate to the Department whether or not the tentative proposal submitted by the Department today is acceptable to said firm.

BE IT FURTHER RESOLVED, That further consideration of this matter be postponed until tomorrow morning at nine o'clock.

On motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned until July 18 at nine o'clock.

FRIDAY, JULY 18, 1930

The Department met pursuant to adjournment. Present as on yesterday save Mr. Martin, who found it necessary to return home.

State Road 30

Senator A. W. Young of Vero Beach appeared before the Department and requested that the state take over for maintenance the remainder of State Road 30 in Indian River County, providing a 9-foot rock pavement on 10 miles thereof, commencing at a point about seven miles west of Vero Beach.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That this Department does declare that there exists an emergency which results in a stoppage of traffic on Road 30 in Indian River County; and

BE IT FURTHER RESOLVED, That the Department do take over for maintenance that portion of said Road 30 from the dyke line canal to Vero Beach and apply the unexpended betterment funds applicable to said road to providing a travelable rock pavement from the end of the present pavement.

BE IT FURTHER RESOLVED, That this resolution is adopted with the understanding that Indian River County will secure and turn over a 66-foot right of way on the unpaved portion and will agree that if and when the Department shall widen the road, said county will provide the necessary lands for right of way on the remainder thereof.

Dade County—Road 4-A

Mr. J. D. Redd, County Commissioner, and Mr. George Bréwer of Miami composed a delegation from Dade County which requested that that section of Road 4-A between Naranja and Homestead be placed under construction as early as possible and that the state place shoulders or protection on the said road in the swales where necessary on that section of the road between Princeton and Miami.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the State Highway Engineer be instructed to place a shoulder and other protection on the swales on Road 4-A between Princeton and Miami; and

BE IT FURTHER RESOLVED, That he be and he is hereby authorized and directed to proceed to the construction of that portion of said road between Homestead and Naranja.

Road 4—Dade County

The same delegation presented to the Department a request that the state take over for maintenance the old Road 4 which lies adjacent to new Road 4 between the city limits of Miami and the Broward County line. Action on this request was postponed for the present.

Projects 500-B, 500-C and 515—Road 20

The Department having under consideration again the matter of award of contract for the construction of a lime rock base on Projects 500-B, 500-C and 515, Road 20 in Bay and Jackson counties, the following resolution, offered by Mr. Hills and seconded by Mr. Shands, was adopted:

BE IT RESOLVED, That contract for the construction of a lime rock base on Projects 500-B, 500-C and 515, Road 20, Bay and Jackson counties, be and the same is hereby awarded to Marianna Lime Products Company, on the basis of its bid received June 6, 1930, in the sum of \$298,375.32, and conditionally awarded to said firm by the Department at its meeting in Tampa last month.

Project 70—Road 5—Peace River Bridge

Representatives of the contractor, Raymond Concrete Pile Company, again appeared before the Department with reference to the controversy between said company and the Department, and submitted a new proposal as a basis for settlement of said dispute, which proposal dated July 18, 1930, appears in the Department's files on above numbered project. They were informed that the members would give consideration to this proposal and grant them another hearing at 3:15 o'clock this afternoon.

Award of Contracts

The Department proceeded to a consideration of the bids received on July 15, 1930, and June 27, 1930, for the construction of the projects hereinafter designated. Whereupon, on motion of Mr. Graham, seconded by Mr. Hills, the following resolution was adopted:

WHEREAS, This Department, after due advertisement, on July 15th, 1930, and on June 27, 1930,

received bids for the construction of the projects hereinafter designated; and

WHEREAS, The firms and individuals hereinafter mentioned were and are declared to be, respectively, the lowest responsible bidders therefor; now, therefore,

BE IT RESOLVED, That contracts be and the same are hereby awarded for the construction of the following named and numbered projects, to-wit:

Proj. 62-A-2, Road 24, Osceola County—Rock base, surface treated. L. B. McLeod Construction Co. Using slag	\$ 95,409.58
Proj. 62-D, Road 24, Osceola County—Rock base, surface treated. L. B. McLeod Construction Co. Using slag	\$279,154.81
Proj. 806-A, Road 25, Hendry County—Rock base, surface treated. E. F. Powers Construction Co. Using resilient plate guard rail and using rock	\$181,737.74
Proj. 708, Road 11, Jefferson County—Rock base, surface treated. Duval Eng. & Cont. Co. Using slag and using resilient plate guard rail	\$118,483.03
Proj. 57, Road 3, Duval and Nassau Counties. Fill. R. C. Huffman Construction Co.	\$158,027.75
Proj. 66, Road 5, Sarasota County—Miaakka River bridge. R. C. Huffman Construction Co.	\$116,625.61
Proj. 75, Road 27, Collier County. Gordon River bridge. Central Station Equipment Co.	\$113,938.42
Proj. 715-B, Road 28, Union and Bradford Counties—New River bridge. Florida Bridge & Const. Co.	\$ 72,611.53
Proj. 911, Road 68, Bradford County—Broken stone base. Duval Eng. & Cont. Co.	\$ 21,881.40
Proj. 714, Road 28, Union County—Broken stone base. F. W. Long & Company	\$ 80,156.42

Use of Round Gravel in Surface Treatment

Messrs. Hugh M. Taylor and C. F. Mullen appeared before the Department and requested that the Department make use of round gravel in the surface treatment of roads as an alternate to the use of slag, and particularly asked that they be given an opportunity to submit a bid for furnishing such round gravel for use on Projects 501 and 501-C in Calhoun County.

On motion of Mr. Shands, seconded by Mr. Hills, the following resolution was adopted:

BE IT RESOLVED, That the producers of slag be advised that this Department will reject all bids to be received July 27 for the use of slag on Projects 501 and 501-C, Road 6, Calhoun County.

BE IT FURTHER RESOLVED, That advertisement for bids be again published on the basis of the use of slag or round gravel in the construction of said projects.

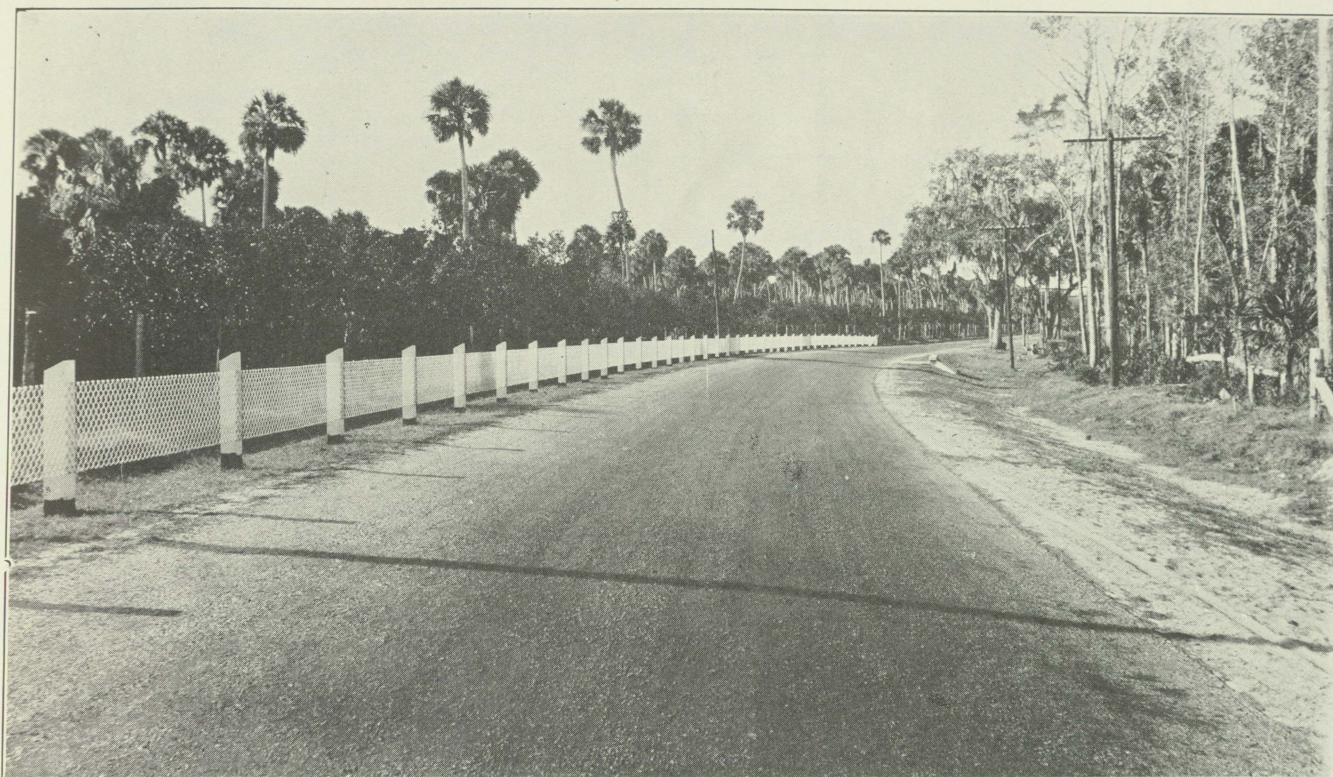
Tire Bids

The Department took up the consideration of bids received on July 15 for the furnishing of the Department's tire requirements for the remainder of the current year.

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the Department does hereby reject all bids received July 15 for the furnishing of the Department's requirements of tires for the remainder of the current year.

BE IT FURTHER RESOLVED, That the Chairman be and he is hereby authorized to re-advertise



Project 597—Road 4—Volusia County.

for bids for the tire requirements of this Department for the remainder of 1930.

On motion of Mr. Shands, seconded by Mr. Graham, the Department was adjourned until two o'clock P. M.

AFTERNOON SESSION—2:00 O'CLOCK

Present as at morning session.

Road 4—San Sebastian River Bridge

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That plans for the bridge across San Sebastian River on Road 4 at St. Augustine be prepared and that advertisement for bids for the construction of same be published at the earliest possible date.

BE IT FURTHER RESOLVED, That all necessary steps be taken covering the provision of a route to the bridge which is satisfactory to the U. S. Bureau of Public Roads and that will permit initiation of the bridge construction.

BE IT FURTHER RESOLVED, That the Chairman be and he is hereby authorized, without further reference to this body, to secure necessary permit from the War Department for the construction of said bridge.

Road 4—San Sebastian River Bridge

On motion of Mr. Hills, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the Chairman be and he is hereby authorized to make application to the War Department for their approval of the construction of a bridge over San Sebastian river, Road 4, located at St. Augustine, in St. Johns county, Florida, which said bridge shall be constructed according to the plans submitted by the Department, said

plans consisting of two sheets, Sheet No. 1 showing the location and soundings and Sheet No. 2 showing the plan and elevation of the proposed bridge.

Projects 60-A and 60-C, Road 4—Volusia and Flagler Counties

On motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That as soon as a clear right of way has been secured and the plans approved, that the Chairman be and he is hereby authorized to advertise for bids for the construction of Projects 60-A and 60-C, Road 4, Volusia and Flagler counties.

Road 28—Palatka to Bunnell

On motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the Chairman be and he is hereby requested to take up with the Bureau of Public Roads what, if any, means can be devised to use convict labor on the grading of State Road 28 between Palatka and Bunnell.

Announcement of Awards

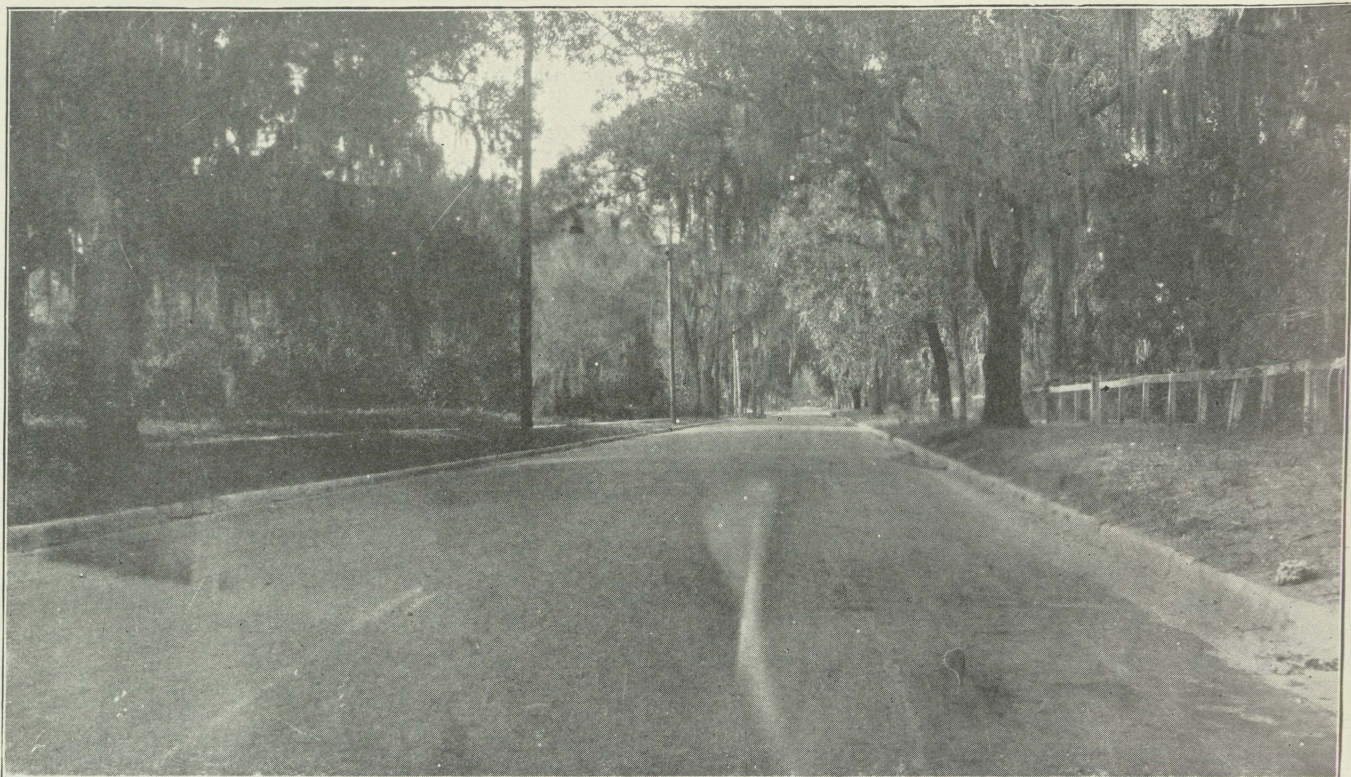
At this juncture the Department made public announcement of the award of contracts made at the morning session.

Duval County—Roads 3 and 4

Mr. Hills, member of the Department, directed attention of the members to the fact that the brick road between the Country Club and Orange Park, on State Road 3, is very slick, and that the same condition applies to State Road 4 near Dinsmore. He suggested that the Department give consideration to surfacing these sections as soon as it may find available funds for the same.

Project 654, Road 4—Dania to Dade County Line

On motion of Mr. Graham, seconded by Mr. Hills, the following resolution was adopted:



State Road No. 3 in Crescent City.

BE IT RESOLVED, That plans be prepared and submitted covering the construction of that section of Road 4 in Broward County between Dania and the Dade County line, in order that advertisement for bids may be published at the earliest possible moment.

Road 85—Indiantown to Okeechobee

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the Chairman and the State Highway Engineer be requested to make an inspection of State Road 85 between Indiantown and Okeechobee, with a view to determining that the maintenance provided for the said road in the budget is being applied.

Road 22—Brevard County

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the Chairman and Engineer be and they are hereby requested to see that the betterment proposed and provided for in the budget for that section of Road 22 in Brevard County is made applicable thereto.

Connection at Gainesville Between Roads 13 and 14

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the Chairman be and he is hereby authorized to have constructed a connection between State Roads 13 and 14 at Gainesville, said connection to traverse the grounds of the University of Florida.

BE IT FURTHER RESOLVED, That this resolution is conditioned upon advice from the Attorney General and the Attorney of this Department that this connection can legally be made.

Road 35—Madison County

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

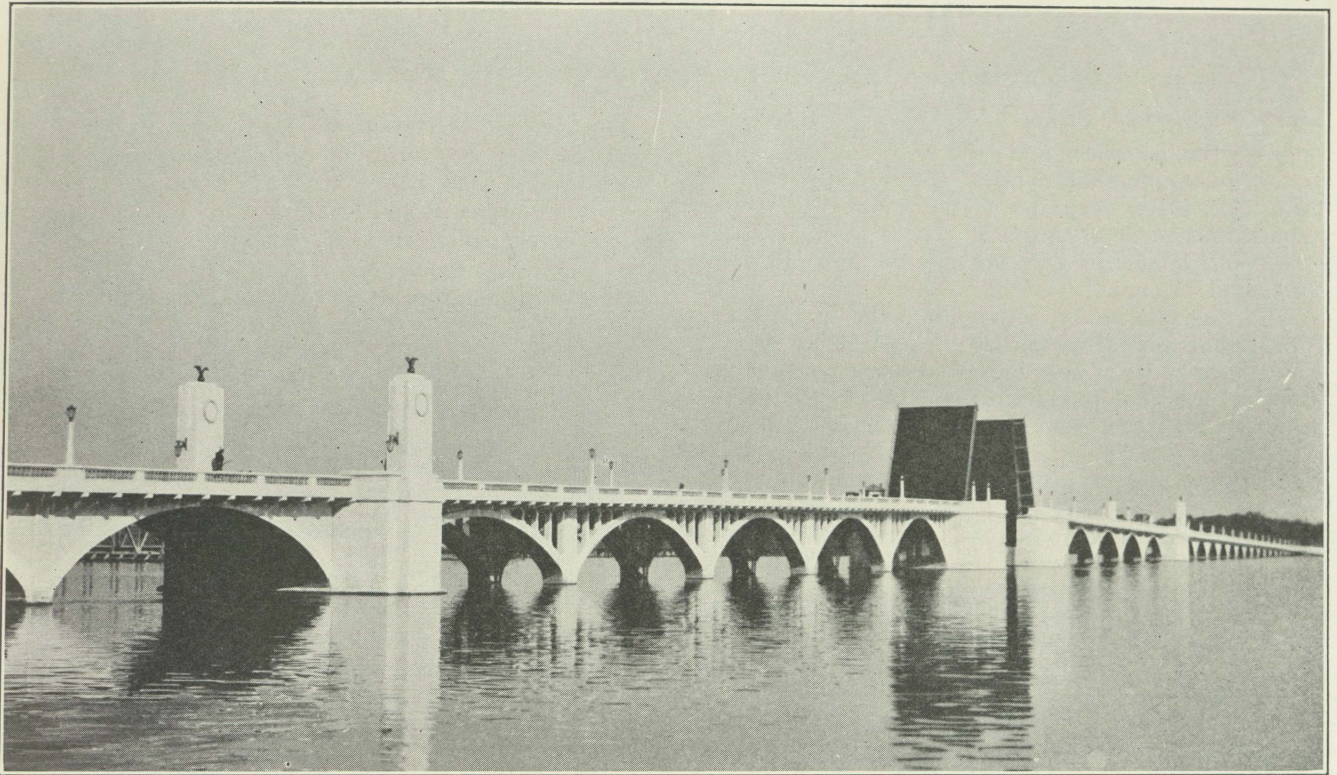
BE IT RESOLVED, That this Department does hereby rescind all former action with reference to the transfer by Madison County of \$87,000 of bonds, proceeds from which shall be applicable to the paving of that section of Road 35 between Greenville and the Taylor County line.

BE IT FURTHER RESOLVED, That this Department do notify Madison County that it will accept said bonds and enter into an agreement with the county to perform the work, provided said county shall accompany delivery of said bonds with the approving opinion of a bond attorney or firm of bond attorneys of national reputation.

Project 70, Road 5—Peace River Bridge

The representatives of Raymond Concrete Pile Company again appeared before the Department and were informed that their proposal submitted this morning is not satisfactory to the Department unless it is amended in certain particulars, which were then submitted to said representatives, a copy of said proposed amendments being placed in the files of the Department on this project. After a lengthy and exhaustive discussion of this matter, on motion of Mr. Hills, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the controversy between this Department and Raymond Concrete Pile Company with reference to piles entering into the construction of Peace River bridge, Federal Aid Project 70, Road 5, be settled upon the following basis: That the Raymond Concrete Pile Company shall accept and absorb the loss of rejection to the extent of $7\frac{1}{2}\%$ of the piles required; that the Department shall pay for the actual cost of piles rejected in excess of $7\frac{1}{2}\%$, which cost shall be based upon \$3.00 per cubic yard for mixing and placing concrete plus the cost of materials, labor and transportation; this



Bridge at Palatka across St. Johns River—Road 3—Built by Putnam County.

proposal to be entered into with the understanding that the contractor shall stiffen up its pile yard in a manner which shall be indicated by the State Highway Engineer.

On motion of Mr. Graham, seconded by Mr. Hills, the following further resolution was adopted on the subject:

WHEREAS, Raymond Concrete Pile Company, contractor on Federal Aid Project 70, Road 5, has asked this Department to request the Bureau of Public Roads at Washington to make a review of the work done on said bridge at Punta Gorda; now, therefore,

BE IT RESOLVED, That the Chairman be and he is hereby authorized in the name of this Department to request the U. S. Bureau of Public Roads to make a full review of the work at Punta Gorda and to make recommendations as to the suitability and methods of manufacture of the piles.

State Road 11—Monticello to Capps

On motion of Mr. Shands, seconded by Mr. Graham, the following resolution was adopted:

BE IT RESOLVED, That the Chairman be and he is hereby authorized, within sixty days from this date, to advertise for bids for the paving of that section of Road 11 between Monticello and Capps.

Approval of Minutes

On motion of Mr. Graham, seconded by Mr. Shands, the following resolution was adopted:

BE IT RESOLVED, That the minutes of the meeting of this Department held at Tampa on June 10th be and the same are hereby approved.

Adjournment

On motion of Mr. Graham, seconded by Mr. Hills, the Department was adjourned to meet at Jacksonville, at nine o'clock A. M. next Wednesday, July 23, at the Carling Hotel.

DELEGATES TO INTERNATIONAL ROAD CONGRESS

Official delegates have been named thus far by 40 nations to attend at Washington Oct. 6-11 the sessions of the Sixth International Road Congress and the exposition of road machinery and materials to be held by the American Road Builders' Association, according to congress officials.

This nation has almost five times as much road mileage as Russia and 4,500 times as much mileage, according to area, as Anglo-Egyptian Sudan, and has an automobile to every 4.6 inhabitants compared with one for every 17,781 in Ethiopia. It leads the world, also, in production and export trade in road building machinery. The delegates from all the world will learn at first-hand here of the methods and equipment which have made this record possible.

The congress sessions will have papers on the leading highway problems prepared by some of the best American authorities and probably will be participated in by President Hoover, members of his cabinet and many other dignitaries of national and international importance.

According to reservations for exhibits already received, the exposition will give a representative picture of the road building industry in the United States, according to Charles M. Upham, engineer-director of the Road Builders' organization, who is in charge of the exposition.

Both in the Washington Auditorium and the outdoor demonstrations, delegates will see the best equipment that America produces for road building. Scrapers, mixers, rollers, motors, tractors, surfacing machines, power shovels and smaller equipment as electric tools and ball and roller bearings will vie for

(Turn to Page 21.)

"Roads As Business-Builders"

By Julius Klein, Assistant Secretary of Commerce, Washington, D. C.

WE OFTEN hear a great many quotations from the classics and the near-classics, but I imagine that none of these has gone on the air more often than the rhyme about "the pioneer souls that blaze their paths where highways never ran—but let me live by the side of the road and be a friend to man."

We are all ready to applaud the humanitarian ideal that animates this last line—but we must not forget to place a few laurel wreaths on the brows of the practical pioneering spirits who build those roads which the rest of us "live beside" and thus enable us to ride along nowadays with such ease and speed in search of pleasure or pursuit of business.

The meaning of good roads in the social life and commercial activity of the United States was brought home to us very vividly a few short weeks ago when President Hoover signed the Dowell bill—certainly one of the most notable pieces of legislation in the history of the highway program in this country. This act authorized an additional expenditure of \$300,000,000 of Federal money (supplementing the previously planned outlay) to aid the States in the construction of roads during the next three years. The economic importance of this appropriation would be difficult to exaggerate.

The subject of the commercial value of roads is particularly timely now because reports just made to Secretary Lamont by the governors of 35 States indicate really striking activity in highway construction this year. Thirty States report increases, and 16 of the governors announce contract awards for the first quarter of 1930, 100 per cent or more above the same period last year. Figures covering almost three-quarters of the country show road-building contracts awarded during the first quarter of this year valued at about \$114,000,000 against \$51,000,000 for the corresponding period last year. The greatest relative increases are in Ohio and Idaho; in the former State the road-construction awards for the first three months of this year were 11 times greater than in the corresponding quarter a year ago, while Idaho shows awards more than 90 times as large as last year. Arkansas is now in the midst of a highway-development program on which 25 million dollars will be expended this year.

This great increase in early-season highway construction is a matter of national moment. It represents a substantial contribution to the stabilization of business. There is reason to believe that the large volume of early awards is especially significant as a means of spreading employment throughout the year. I shall say more, in a few moments, about the business value of the highways after they have been completed—but I want to emphasize now that highway construction operations under way involve the use of millions of tons of material drawn from widely separated sources, and they provide employment (both directly and indirectly) over broader areas than any other type of public work. It is calculated that nearly 50 cents of each dollar spent for highway building and maintenance is paid for the labor involved. And this does not mean merely the able shovel-wielders out in the hot sun; it includes mak-

ers of cement in distant cities, chemists in explosive plants, steel workers, lumber-yard employes, and countless others who contribute to the creation or purveying of road and bridge materials. So, workers everywhere should benefit greatly from these road-building enterprises. And transportation agencies will derive appreciable profits from the shipment of the essential equipment and material.

The extent and quality of a nation's roadways determine, to a high degree, its rank in the material civilization of the present day. For contemporary commerce, the highway is absolutely indispensable. Backwardness and sluggishness, or turmoil and bewilderment may result from a lack of highways over any considerable area of the surface of the earth.

What one may call, perhaps, the "religion of the road" was established for the modern world by the practice of ancient Rome. The Roman road—incomparably magnificent in the skill and solidity of its construction, and in the undeviating pertinacity with which it was thrust out in every direction from the city by the Tiber—enabled Rome to become the mistress of the Mediterranean and of practically all the then-known world. Those roads formed an intricate and gigantic network—stretching out to Spain, to Scotland, to Germany, to Syria, to Egypt and through northern Africa. Sometimes as much as three feet thick, and almost as enduring as primeval rock, these Roman highways struck straight for definite goals. They penetrated forests—surmounted morasses—formed an avenue of life through barren wildernesses—or functioned as the busy arteries of a rich and smiling countryside. Over them thundered the Roman legions—and in the wake of the legions came the Roman law, the "Roman peace."

Most of our early American statesmen were passionately enthusiastic about the value of roads. We find that brilliant Carolinian Calhoun saying, in the year 1819, that "a judicious system of roads, constructed for the convenience of commerce and the transportation of the mail, would—by consolidating our Union and increasing our wealth and fiscal capacity—add greatly to our resources."

So, in those early days, there was a period that was called "the Turnpike Era," when roads were penetrating far into the stagnant rural "back country," and when turnpike and bridge companies became a veritable "craze." In swampy places the people had so-called "corduroy roads"—consisting of logs placed close together and covered lightly with earth. I must not forget to mention the "Wilderness Road" which Daniel Boone hewed out from North Carolina to the heart of the Kentucky country. It was ungraded—it was partly obstructed by stumps—it was full of annoying cavities—but over it journeyed the grandparents of Abraham Lincoln. Then there was the famous "National Road" which was started from Cumberland, Md., in 1808; as Malcolm Keir reminds us, it took three Presidents, ten Congresses and fourteen governmental acts to get that road even as far as Wheeling, W. Va., about 135 miles, within a period of nine years.



North Bay—St. Andrews Bay—Bay County.

Occasionally, even in the early nineteenth century in this country, one might see the typical two-wheeled peasant's cart of Europe; but the real long-distance freight carrier came to be the Conestoga wagon, high from the ground, to clear those stumps and rocks, and with a peculiar curved shape—actually a crude boat on wheels, useful in crossing deep streams.

All that life upon the highways was extremely picturesque, but uncomfortable and trying, because, by our modern standards, those roads were very poor.

Most of us Americans who are not excessively young can recall very well the "pre-good-roads" days out in the country districts—the narrow dirt strips; the ruts and bogs and bumps and ridges; the treacherous holes where the old gray mare might stumble and collapse; the jolting and bouncing; the "slithering" through long sections of the highway which, as a result of rains, had become little more than swamps. It was a task in those days—a feat of endurance and hardihood, in many cases—merely to make 15 miles to "get to town" in a buggy or in one of the hard, lumbering, old-fashioned country wagons, to say nothing of undertaking any prolonged or extended trips.

And what, we may ask, was the social effect—or, more specifically, the business effect—of that condition? Transportation was impeded. The movement of people and of goods was slowed up, made difficult. There was a natural hesitation about venturing far from one's own bailiwick, in any case where roads alone were available for movement. The tendency was one of isolation, of segregation, of social and commercial life concentrating contentedly in and around a countless number of small centers—the cross-roads of settlement, the hamlet, the village, the little city.

Each of these centers enjoyed a rather high degree of economic independence, being in large measure self-sufficient and self-sustaining. Each had its "sphere of influence," in which a spirit of neighborly understanding reigned and commercial interchange was restricted very largely by the geographic limitations of the given region. A business establishment in any one of these more or less isolated centers had a trade it could depend upon as long as its service should continue satisfactorily—a trade that came to it naturally and inevitably in consequence of the lack of hard, smooth highways and speedy transportation.

Good roads have revolutionized the business of the nation, and "the end is not yet." A profound change in commercial habits has been wrought by those thousands and thousands of miles of sleek, gleaming road-ribbons that we have created for ourselves and over which we dash so swiftly and exultantly, with the exhilarating sensation that we are setting space at naught.

Under the resistless compulsion of the automobile's spread, the good-roads movement here in the United States has advanced with giant strides. Let us hark back for a moment to the year 1904. How much money do you think was being expended by State and Federal governments in that year for rural highways? Only a little more than two and one-half million dollars—incredible as that tiny figure may seem to us today! In 1928, the most recent year for which we can obtain complete statistics, the comparable figure was more than 827 million dollars—three hundred and thirty times as much. And, in addition to that huge sum, the expenditures of the counties and other local governments for roads in 1928 reached a total of 832 million dollars. Since 1921, the aggregate expenditures for roads in this country have mounted above a billion dollars every year.

According to the very best estimates I can obtain, we now have in the United States more than three million miles of public roads. This, to be sure, includes roads of all classes outside the limits of municipalities and is made up largely of local roads of small importance. We have 660,000 miles of surfaced roads. The "Federal-aid system"—which includes the roads of highest traffic importance—comprises nearly 190,000 miles, a system of splendid highways which would extend almost eight times around the world if it were in one unbroken road. Our roads form an admirable system, in many respects, but it is widely felt that we need more.

I spoke a moment ago about the enormous annual expenditure in this country for road construction. But (as Mr. T. H. MacDonald, the chief of the Bureau of Public Roads, has pointed out) this expenditure equals only one-half of the annual expenditure by owners of motor vehicles for gasoline alone. The public applauds the expenditure of money for good roads; it recognizes that this use of funds is economically wise, far-sighted, and remunerative. Because of the existence of the fine hard-surfaced roads the great motoring public spends vastly less than it otherwise might for such items as gasoline, operating expenses, and upkeep of cars. There can be no doubt whatever that the amount thus saved exceeds the sums that we have been spending on our roads.

During 1929, by the way, our motor vehicles probably consumed more than 14 billion gallons of gasoline. If we figure 12 miles to the gallon—which appears to be the approximate average consumption by vehicles of all make and types—we are compelled to conclude that the motor cars of the United States traveled more than 168 billion vehicle-miles last year. As Mr. MacDonald says, this is "an almost inconceivable figure," made possible by our improved roads and streets.

I know I need not stress the commercial value, and the value in health and pleasure, of these great modern roads. Along these superb roads our millions of motor cars whirl us over ground that once resounded to the clatter of the hoofs of red warriors—that witnessed the desperate struggles and determined advance of the "covered wagon days—or that shook under the tread of the gallant heroes wearing the uniforms of Blue and Gray.

We all know what good highways have meant to the automobile industry in all its ramifications and affiliated branches—how motor-car registrations have leaped upward with the construction of fine roads—bringing prosperity to the manufacturers, to the manifold industries that are tributary to such manufacture, and to the many phases of automotive service and accessory supply. The automobile forms indisputably a basic, "key" industry in this country; it provides employment for one out of every ten of the workers in the United States. Therefore the "business benefits" from good roads in this single major aspect may justly be called immense.

Good roads have helped the farmer by cutting the cost of getting his produce to market. They have reduced the expense of merchandising, and the economies thus effected have meant money in the pockets of every single one of us. The farmer can ship perishable commodities to the city much more readily; such is the case with all sorts of "garden truck" and fruit that ripens on the trees. The shipper does not

need to wait to accumulate a carload lot; he can deliver the produce right into market and dispose of them immediately to good advantage. I find that in certain instances the supply of milk to cities is carried on over the highways to the extent of more than 90 per cent of the quantity consumed. Activity of this kind has taken some traffic from the railways—but in general the operation of trucks over the roads is helpful to the rail lines; the trucks serve as "feeders," accessories, tapping new territory, engendering new productive efforts.

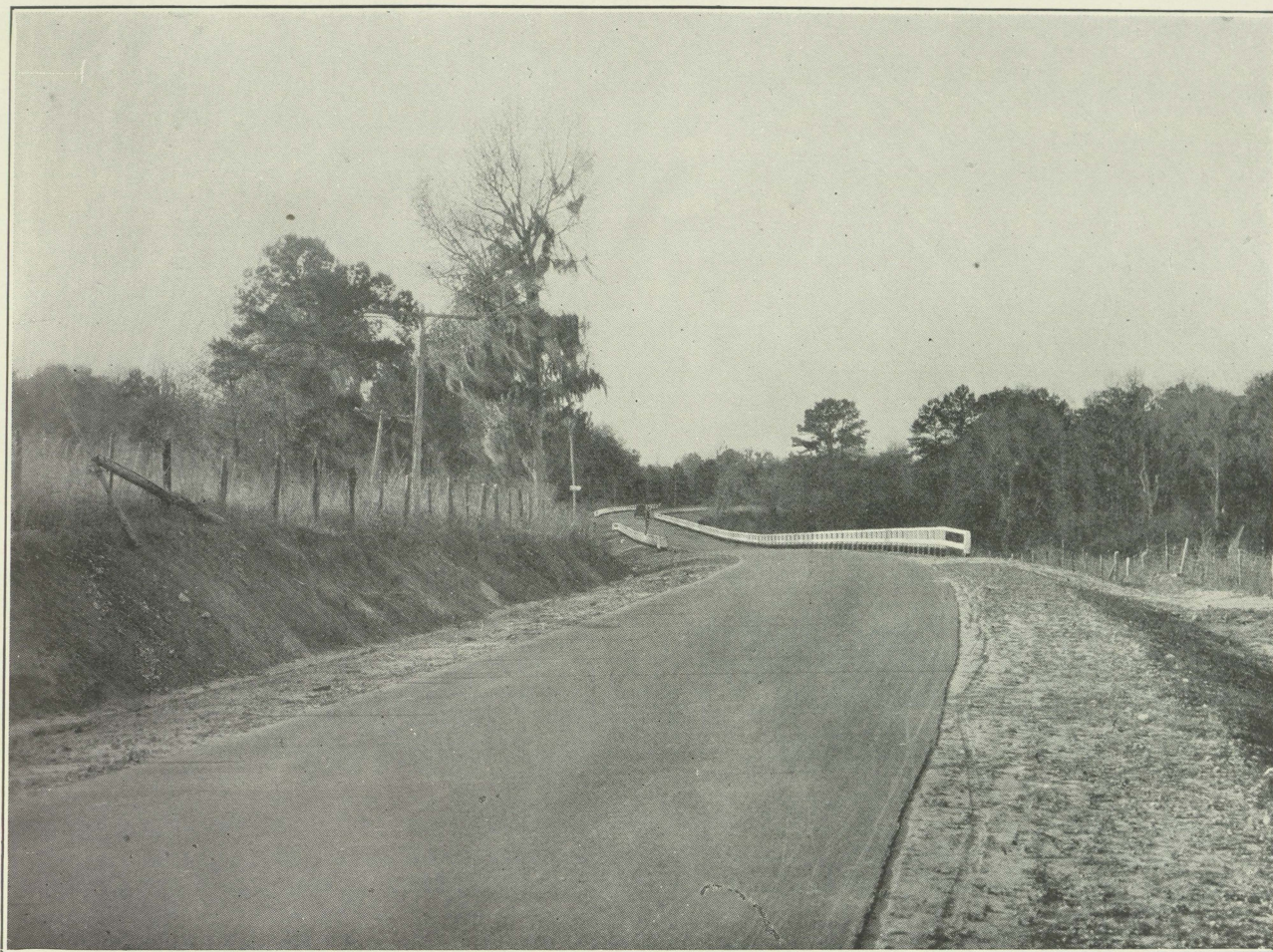
For the manufacturer, there is the possibility of swift "inter-plant exchange" of commodities in course of production—an exchange accomplished by truck—in cases where it is most convenient to have one operation performed in one place and other operations elsewhere.

As regards passenger traffic in other than private cars, I need only say that today busses carry more than three billion passengers annually in the United States—24 times the total population of the country.

The feasibility of prompt delivery represents one of the greatest commercial contributions of the motor road. The small-town store can keep a fresher stock—can enjoy a quicker turn-over—is relieved of the necessity of having so large an "inventory"—and can "keep up with the styles" much more readily than in the past. The isolation, the "self-centered" quality, of the smaller community has been broken down.

In numerous respects the result has been advantageous—but there is (I must admit) another vital element here which many small-town merchants may regard with apprehension: namely, the fact that their once exclusive province has been laid open to invasion by business organizations spreading from the cities, and the motor road has been responsible in part for such incursions. This is so big a subject that I shall defer it till another time on the general theme of the business future of the small town—along with the role that the modern road is playing in the decentralization of industry and the rise of factories in smaller centers.

To illustrate effectively the specific business benefits from roads, let us take just one state as an example. North Carolina should serve admirably as a "test case." Between 1919 and 1926 that state constructed 125 million dollars' worth of highways. And with what economic result? The number of farms in the state was increased by 13,000 during a period when the number of farms for the country as a whole was falling off. It may be objected that, in view of existing surpluses, greater agricultural production is not needed; but the point to be borne in mind is that the roads make it possible to organize the situation more deftly and efficiently. Forty cooperative farm marketing associations were developed in North Carolina—engaged in shipping carload after carload of poultry, eggs, hogs, fruits, and vegetables that the state formerly never grew for outside sale. Roadside markets and city curb markets—the immediate result of the good roads—stimulated the growing of truck produce and formed an outlet for the farm surplus; with the cash thus obtained, the farm women put modern conveniences into their homes, dressed themselves and their children better, painted their houses and beautified their yards—thus creating substantial business for a variety of merchants. The true value of North Carolina property multiplied eight times between 1900



Aalachua County—Project 37—Road 2.

and 1926, while the entire United States was increasing the true value of property by four times. Through the new roads, the state was enabled to recover its "lost provinces"—those sections to the far east and west that were formerly foreign to the state so far as transportation connections of any kind were concerned. As a direct accompaniment and outgrowth of the new good road North Carolina built consolidated rural schools valued at 35 million dollars. At Asheville there was a 200 per cent increase in dollar business between 1919 and 1926—the period during which the good roads were built. In the Winston-Salem trade territory, the retailers reported a 65 per cent increase in purchasing power per capita. The Greensboro Chamber of Commerce testified that the good roads widened the retail trade territory of the city to an irregular area extending from 15 to 50 miles. The fine roads have given a simply tremendous boost to the state's tourist traffic. In 1920, North Carolina itself had about 140,000 motor vehicles; now it has not less than 485,000.

Here we see concrete proofs of the business benefits from highways—not idle theories, but authentic and attested facts. And since those facts were summarized four years ago, no doubt the benefits have multiplied.

The modern motor road has given to the business man, as an individual, a wonderful freedom of movement—an ease and flexibility in the scope of his activity—which he never enjoyed in other eras. It has relaxed all kinds of once rigid commercial bonds.

It has helped to make business fluent, copious, easily impelled and diffused, swift to reach its goals—and vastly more complex than anything our fathers knew.

One great problem that the motor road has brought is that of highway safety. There is no blinking the fact that countless tragedies have marred its use. What can we do to prevent it from becoming a modern Moloch, to which precious lives are sacrificed in a frantic, heedless speed-orgy? This question of safety on our streets and roads is an enormously vital one, and has important business bearings which we must solve.—American Highways.

Under an old English law, land leased for 100 years was considered sold, hence the longest lease issued today is for 99 years.

I'll be

The plumber worked and the helper stood helplessly looking on. He was learning the business. This was his first day.

"Say," he inquired, "do you charge for my time?"

"Certainly, you idiot," came the reply.

"But I haven't done anything."

The plumber, to fill in the hour had been looking at the finished job with a lighted candle. Handing the two inches of it that were still unburned to the helper, he said witheringly:

"Here, if you gotta be so darned conscientious, blow that out!"—Exchange.



State Road No. 5—Through Archer.

Across Kentucky Along the Trail of Daniel Boone

From Covington, on the Ohio River, to Cumberland Gap, where three states converge, the Dixie Highway, marked by the D. A. R. as Boone Trail, follows a 250-mile course through a land rich in beauty and tradition.

By JAMES M. JEWELL

EVERY motorist who has joined the semi-annual migrations to northern or southern resorts and has chosen the Dixie Highway as his route recalls with particular interest the 250-mile drive across Kentucky—a drive that takes him definitely from one section of the country to another through the heart of the Blue Grass State.

Along this splendid highway, hard-surfaced for all but a few miles of its length, are many reminders of the illustrious role that Kentucky has played in the development of the nation. Following a trail closely approximating this, Daniel Boone came from North Carolina and Tennessee into the old Dark and Bloody Ground. Productive farms and coal mines, beautiful estates, famous educational institutions and historic mansions line the route from end to end of the state.

In Covington, just across the river from Cincinnati, stands the smallest Catholic church in the world—Monte Casino, a tiny, ivy-covered stone structure that accommodates but two worshippers and the priest. South from this gateway city the road winds along a ridge that offers fine views for many miles in all directions. Georgetown, seat of Georgetown College, lies on the threshold of the fertile Blue Grass district, famous for its great race horses and many handsome estates. At Faraway Farm, nine miles from Lexington, is the home of Man o' War, perhaps the world's greatest race horse, who is insured for half a million dollars.

In Historic Lexington

Lexington, capital of this rich Blue Grass empire, claims the attention of every motorist with its beautiful homes, its great university and its historic shrines, including "Ashland," home of Henry Clay and the home of Mary Todd, wife of Abraham Lincoln. On the campus of the University of Kentucky the original strap rails and limestone sills used in 1830 in building the first railroad west of the Alleghenies are preserved. The College of Engineering building, with its great lounging hall and many interesting models and pictures, is outstanding among the many fine structures.

Not far from Lexington the highway crosses the Kentucky river and sweeps up a high bluff that affords a magnificent view of the river, its palisades, and far back into the Blue Grass counties.

South of Richmond, 25 miles from Lexington, the foothills of the Cumberland Mountains are entered while the mighty ranges themselves are dimly to be made out on the far eastern and southern horizons. Nestling among these knobs is perhaps the most unique college in the United States—Berea. Founded in 1855 to provide education for the children of "Appalachia," that vast but sparsely populated area of 100,000 square miles included in the remote mountains of Kentucky, Virginia, Tennessee and North Carolina, this school has adhered to its original purpose with a tenacity that places it among our foremost institutions. Non-sectarian, receiving

no support from state or church, Berea derives its sole support from private benefactions and offers, thanks to its unique system, a year's training for the insignificant sum of \$150 or less! But Berea students work. At least two hours each day must be spent in the college's own print shop, in its bakery, or dairy, on its farms or in the many other industries representative of nearly all types of human activity. And when they complete their education most of these students return to Appalachia taking with them the knowledge and zeal that is gradually emancipating the mountain folk from ignorance and disease and eighteenth century ideas.

Along the Way

The country becomes increasingly rugged as the highway pushes deeper into the heart of Dixie. Coal mines dot the way; log cabins are seen more frequently than houses of stone or brick and the donkey is a companion of the motor car along the way. Near Mt. Vernon is Great Saltpeter Cave, one of the large caverns that are typical of the foothills. Saltpeter operations were carried on here during the War of 1812.

At Corbin the Dixie Highway diverges, one branch going east through the historic Cumberland Gap and rejoining the main route at Knoxville, Tenn., to continue to Augusta, Ga. On this route is Pineville, sitting at the base of majestic Pine Mountain, a great escarpment running many miles along the eastern border of the state, and ascended by a splendid road.

The tree-clad Cumberlands, among the best known mountains in the world, and at an altitude of 1,300-

2,800 feet above sea level, now rise on every side as the highway picks its tortuous way through the valleys to Middlesboro. From this city of 9,000, the largest since Lexington was left behind, Pinnacle Mountain, 2,860 feet high, is the dominant feature while just below is the Saddle of Cumberland Gap through which early immigrants came and where the states of Kentucky, Tennessee and Virginia converge.

The Gap Region

Lying partly in Virginia and partly in Kentucky, Pinnacle Mountain is ascended by a motor road that affords a sweeping panorama of the ranges of the Cumberlands, the valleys of Virginia and Tennessee, of Fern Lake, a turquoise body of water near Middlesboro and, on a clear day, of the Great Smoky Mountains, 100 miles southeast on the North Carolina border—the "Land of the Sky." The Gap was of great strategic value during the Civil War and Pinnacle Mountain is girdled with the remnants of the entrenchments used by both federal and confederate troops.

Pinnacle Mountain and the Gap mark the end of the trail in Kentucky. From here the motorist may follow excellent roads to Roanoke and tidewater Virginia; or to Florida by way of Knoxville and Atlanta or through Asheville and along the eastern seaboard. Higher mountain ranges and wider rivers will be crossed but nowhere on the 1,500-mile journey from Port Huron to Miami will there be found a 250-mile stretch of road comparable with this from the viewpoints of diverse and charming scenery and of historic interest.—The Highway Magazine.

Cotton in Road Construction

By H. S. JOHNSON

New Uses Section—The Cotton-Textile Institute

HIGHWAY improvement is the order of the day. On every side the demand for good roads—and for better roads—has attained such proportions that highway engineers, builders and public officials are confronted by the question of how to meet such urgent needs and build for the future. New methods and new technique steadily make their appearance so that the highway engineer is searching for the best and most modern methods of construction.

In this connection there is particular significance in experiments now being made with the use of cotton fabrics in improving country roads by a modification of the bituminous surface treatment of earth-type roads generally followed. The results of these experiments which have been carried on in South Carolina since 1927 and in Texas since 1929 already have attracted extensive notice in foreign countries as well as in the United States because of the distinct changes in engineering technique which are now indicated.

First Tried in South

It was quite fitting that experiments with this new use of cotton should be undertaken first in the South where cotton is important not only as a farm crop but as a manufactured product. In an effort to determine the practical value of cotton in road construction, Charles H. Moorefield, State Highway Engineer of South Carolina, installed a cotton membrane in a bituminous surface mat constructed on the earth-type surface of country roads which were being improved in Spartanburg and Newberry coun-

ties in that state. Directly as a result of tests made since these experiments were started highway engineers in Texas have undertaken similar work. In the Texas experiment the entire surface of the road was covered with the fabric similar to the first experiment in South Carolina while in the second experiment in the latter state only the shoulders have received the additional protection of a fabric covering.

At the present time results of these experiments indicate that rural roads can be improved quickly, economically and satisfactorily by such use of a cotton fabric membrane in combination with light tar and asphaltic oil.

By this method the highway is first subjected to that processing ordinarily employed in bituminous surface treatment of earth-type roads. The surface of the road is first scarified, brought to the desired cross section and grade and is then opened to traffic to allow it to rebond, the surface of the road being kept smooth by the use of scrapers or drags. The earth comprising this road should consist essentially of small sized gravel with a mixture of sand and clay as a binding material.

After the surface of the road is thoroughly rebonded, it is again closed to traffic and thoroughly swept for the entire width of the treatment with a revolving broom, supplemented with hand brooms, all loose particles being removed.

Application of Light Tar

A prime coat of $\frac{1}{4}$ gallon per square yard of light tar 8 to 13 specific viscosity is then applied. This



Project 604—Road 4—Volusia County.

light tar should not have more than 2% water content, softening point not more than 60 degrees C. or 140 degrees F., with a total bitumen content of 88 to 97%.

Two Methods of Use

After an interval of 24 hours a cotton fabric is spread longitudinally along either the entire surface of the road treatment or along the shoulders only. This should be done while the tar is still sticky enough to hold the fabric in place. This cotton fabric weighs 4.61 oz. per yard 36" wide, contains $3\frac{1}{2}$ warp threads per inch and 7 filling threads per inch, both yarns 4 ply.

Approximately four tenths of a gallon per square yard of asphaltic oil 150 to 200 penetration at 25 degrees C. (77 degrees F.) is then applied hot (not less than 275 degrees F.) to the fabric and surface. The asphaltic oil must be homogeneous, free from water, and should not foam when heated to 175 degrees C. (347 degrees F.). The surface is then immediately covered with about fifty pounds per square yard of coarse sand or coarse sand and fine gravel or finely crushed limestone or granite. As soon as this covering has been applied the road is ready for traffic.

There are certain requirements in this method of construction that must be met in order to obtain a satisfactorily finished road. All dust, dirt, loose or foreign material must be removed for the full width to be treated by sweeping with a revolving broom or other approved mechanical sweeper, supplemented by hand brooms. Dust or other loose material in depressions or other places not reached by mechanical sweeper must be swept out with hand brooms. Great care must be taken to thoroughly clean the

outer edges of the strip to be treated. Sweeping should continue until all the dust or loose dirt is removed before application of the prime coat of light tar. The tar shall not be heated to a temperature greater than 150 degrees F. and shall be applied at a temperature of not less than 125 degrees F. It shall not be applied until the earth-type surface has compacted and bonded under traffic and then only when this surface has been properly swept, is firm, compact and dry.

The asphaltic oil shall not be heated to a temperature greater than 375 degrees F. and shall be applied at a temperature of not less than 275 degrees F. It should not be applied unless the prime coat of light tar is firm and intact and free of any signs of moisture and when the temperature of the air is not less than 50 degrees F. in the shade.

Utility Shown

When the experimental sections of the state highway in South Carolina thus treated were inspected after the first year it was found that the shoulders of the highway were in excellent condition and showed very little wear. These experimental stretches totaled one and a quarter miles in length and the early success of the experiments were responsible for the state highway department's announcement that it would undertake similar improvements on 70 miles of highway during the succeeding two years.

One of the principal advantages of this new method of treatment is the low cost of the installation and maintenance. This is a particularly important factor in states having extensive networks

of dirt country roads which for various reasons have not yet been improved.

Additional Advantages

In addition to the comparative economy of initial construction further advantages are claimed for this method as follows:

(a) Increased supporting strength or surfacing material under outer edge of treatment by preventing rain water running off impervious surface treatment soaking into the surfacing material.

Disintegration Retarded

(b) Reduced progressive failure of impervious surface treatment by strengthening the treatment's resistance to shear and holding broken pieces of the treatment in place.

(c) Tends to delay displacement of small piece of impervious surface treatment on edges of a road where selected earth-type surfacing is of inferior quality or inadequate depth or which for any other reason is not of sufficient strength to support the wheel loads of highway traffic without appreciable deformation and has resulted in cracking in checker-board design after the treatment has been in place long enough to become brittle, this cracked condition often being referred to as "elephant hide."

(d) Retards the forming of corrugations by restraining flow or displacement of materials when too large a proportion of bituminous material has been used in the surface treatment or from traffic continually following one lane.

Other Uses of Cotton Fabric

Cotton is also used extensively in other types of road construction—particularly as a cleavage fabric between the upper and lower courses of concrete highways. In this case the cotton mesh is laid over the base course and the top course is poured upon it. Although pervious to the fine mortar used in the top course the fabric is impervious to the coarse aggregate used in the base and thus provides a cleavage plane so that when repairs or resurfacing may be necessary the top course can be cleft or split off and the road resurfaced without impairing the foundation.

This latter fabric is made from specifications originally worked out by engineers on the staff of The Cotton-Textile Institute in collaboration with research associates in the Bureau of Standards at Washington.

These uses of cotton and particularly the new method for improving country highways are significant at this time in view of the extensive public works programs which have been announced since President Hoover requested the state governments to plan and carry out as much construction as possible. It is estimated by the Bureau of Public Roads, U. S. Department of Agriculture, that there are approximately 3,000,000 miles of unimproved rural roads in the United States and these, of course, are to be considered in any comprehensive program of highway improvement throughout the nation.

The Secretary of Agriculture, in response to President Hoover's suggestion for public works construction, has apportioned among the 48 states and Hawaii Federal aid highway funds aggregating more than \$73,000,000 for the 1931 fiscal allotment. To this has been added a balance of \$28,000,000 of Federal aid funds previously apportioned and not used, making the total in excess of \$101,000,000. On the

basis of 1929 figures it is estimated that Federal contributions to highway building amount to 42 per cent of the total, and if the same ratio is maintained in 1930 approximately \$245,500,000 will be available for road construction.

If the final results of service tests now being made with cotton in highway construction support the conclusions already derived this new technique should be of great significance to road builders and the public that is demanding improved means of transportation.—Good Roads.

HIGHWAY BRIEFS

Colorado—During last winter the famous Tennessee Pass highway, 10,240 feet above sea level, was kept open for the first time throughout the winter for an average daily motor traffic of 100 cars. Maintenance crews at times worked at a temperature of 36 degrees below zero.

Illinois—A total of 41 grade separations to cost about \$4,000,000, the expense to be split equally between the state and the railroads concerned, is on the program for 1930.

Massachusetts—To insure uniformity in the design, location and operation of traffic signals, the Department of Public Works has recently taken over complete statewide control of these signals.

National—Announcement, early in May, that the Red Cross will establish and maintain first-aid stations along the highways, is a step forward in mitigating the disastrous results of our huge annual automobile accident toll.

Nebraska—Interstate traffic on Nebraska's through highways has increased more than 63 per cent since 1926 when the daily average noted at eleven stations was 226.5 vehicles.

New York—Methods first employed by John A. Roebling in 1854 are being used today in spinning the aerial cables of the 3000-foot suspension bridge being constructed across the Hudson river at Poughkeepsie.

Pennsylvania—Exterior decoration on the new state highway building at Harrisburg recognizes the roles played by men and machinery in modern road building. The architraves show road machinery—tractors and rollers—and a survey party.

Quebec—The coming winter will see many of Quebec's highways open to year-round traffic for the first time as the economic necessity of all-year motor communication is being realized.

Wyoming—At the end of the present construction season Wyoming highways will have 311 miles of oiled surface. Two million gallons of oil, to be purchased from local refineries, will be used this year.—The Highway Magazine.

Relativity

Teacher—"What is the difference between a flea and an elephant?"

Tommy—"Well, an elephant can have fleas, but a flea can't have elephants."—Everybody's Weekly.



Project 641—Road 4—Palm Beach County.

U. S. Opens Field Office in Panama to Aid Inter-Continental Highway

TO COOPERATE with the Governments of the Central American countries in making preliminary surveys to determine the most desirable route for an inter-American highway, the Bureau of Public Roads is opening a field office in Panama City, the U. S. Department of Agriculture announced. E. W. James, Chief of the Division of Highway Transport of the bureau, who is in charge of organizing the work sailed for Panama Saturday June 21. Thomas A. Forbes and D. Tucker Brown, Senior Highway Engineers, and Marcel J. Bussard, Assistant Highway Engineer, will constitute the bureau force of the Panama City field office.

Congress authorized this cooperative effort and appropriated \$50,000. The Inter-American Highway Congress in October, 1929—held at the invitation of the Republic of Panama in Panama City to discuss the road problems that each country would have to solve to make possible a connecting road—asked the Pan American Union to appoint an inter-American highway commission of from 3 to 8 members from the participating countries to carry on the work of planning and constructing such a trunk line. Delegates from each of the Central American republics and from the United States attended the congress.

The Bureau of Public Roads will cooperate with the Commission the department explains, and will assist in making surveys only as the several countries request such help. Five of them, Costa Rica, Nicaragua, Guatemala, Salvador and Panama, have requested assistance or indicated their adherence to the plan. Guatemala, Costa Rica and Panama have asked for assistance. Mexico has already planned a route from the Rio Grande at Laredo, Texas, to

the Guatemalan frontier at Suchiate, which will be constructed as rapidly as funds permit, and will cooperate to the degree that the interests of the country dictate.

The first practical advance toward highway communication between the Americas developed seven years ago at the Fifth International Conference of American States at Santiago, Chile, in 1923, when the conference adopted a resolution suggesting the desirability of a Pan American motor highway congress and a conference on automobile highways to be called by the Pan American Union "to study measures best adapted to developing an efficient program for construction of automobile highways within the different countries of America and between these different countries."

When this suggestion reached the United States, it was discussed by the Pan American Union, the Inter-American Highway Commission, the Departments of Commerce and Agriculture of the United States, the Highway Education Board of the United States, the National Automobile Chamber of Commerce, and other groups interested in highway transportation. An unofficial invitation to Latin American officials interested in highway problems asked them to visit the United States to make an intensive study of our highway and transportation problems and to exchange and discuss professional information and experiences in road building. They were then to outline and submit to the Pan American Union a tentative program for the conference which had been agreed upon at Santiago.

No government funds were available for bringing the officials to this country, so the leaders of the



Along Indian River in Brevard County.

motor industry in the United States agreed to underwrite the expense of this visit which included an extended tour on the highways of the United States.

Thirty-eight leading government engineers, economists, and other officials representing 20 Latin American countries made the trip in 1924. At the conclusion of the road inspection tour, they met in Washington and organized the Pan American Confederation for Highway Education, an international organization, to study and to promulgate in the different countries constituting the Pan American Union the fundamental principles that contribute to the development of adequate highways. They also resolved themselves into a committee on program for the first Pan American Highway congress, to which the Argentine government had issued invitations for a session at Buenos Aires in 1925. A principal feature of the program this group recommended was the consideration of the construction of a Pan-American highway to connect the capitals of all the countries that are members of the Pan American Union.

The first Pan American Congress of Highways decided to perpetuate the congress as a permanent organization to promote the rapid and efficient development of highways in the American continents. It also decided to establish in each member country a national highways division, which should endeavor to put into effect the decisions, resolutions and recommendations of the congresses.

In the spring of 1926, a group of Pan American journalists attended the Pan American Congress of

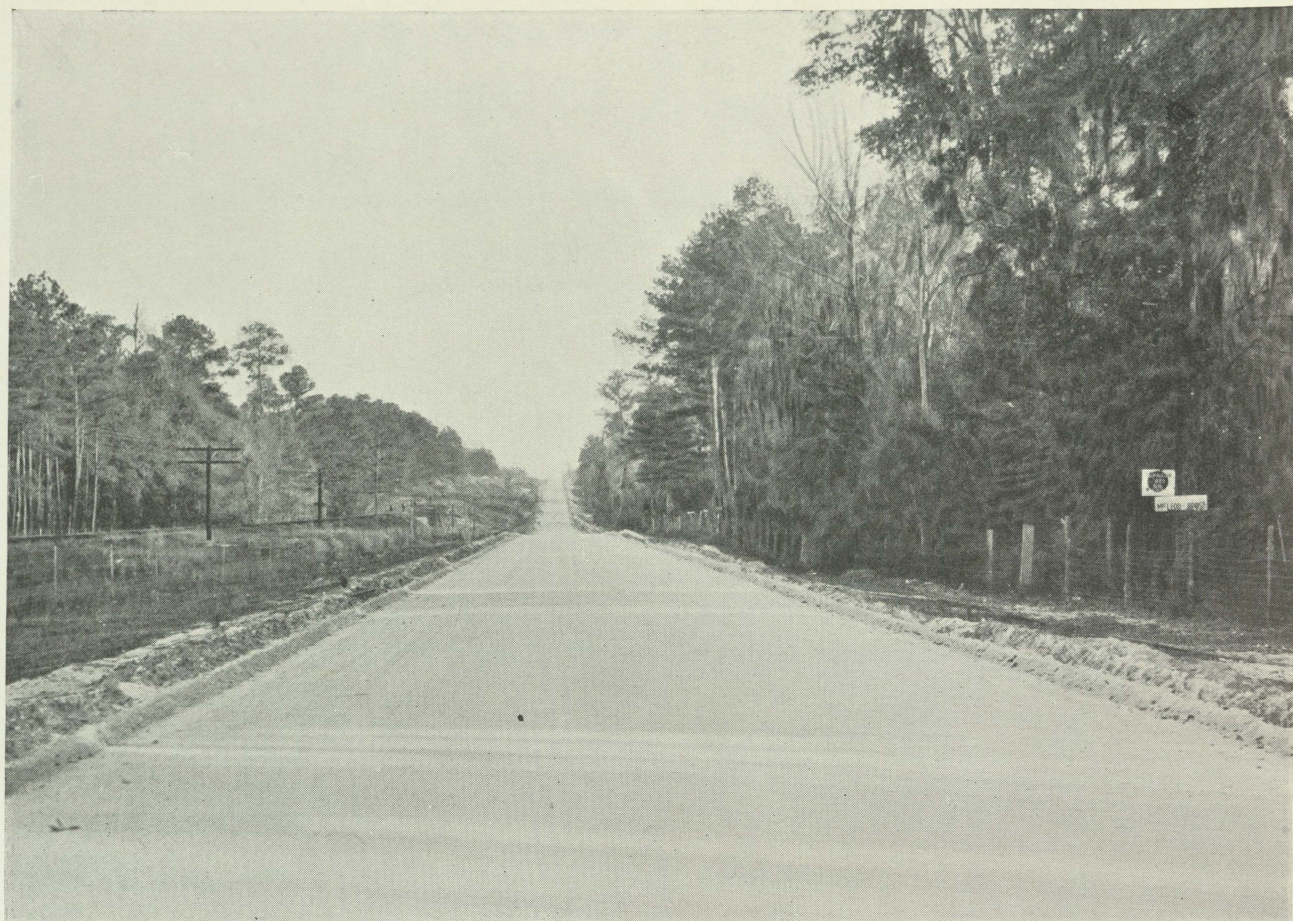
Journalists in this country and made a road tour of several states to observe something of the social and industrial influences of our highways.

Another group of Latin American representatives, the business men of the countries, attended a commercial convention in 1927, and the delegates made a two-weeks' tour by highway and railroad through the agricultural and industrial centers of the eastern and central sections of the country.

The Sixth International Conference of American States at Havana, Cuba, in February, 1927, discussed an inter-American highway. The conference recommended to the Pan American Congress of Highways, which was scheduled to meet later in the year at Rio de Janeiro, the consideration and adoption of agreements looking to the construction of a road of longitudinal communication across the continent, taking up and deciding all questions relative to studies, route, branch connections, technical and economical cooperation of the different countries, and all other matters involved.

The Congress was asked to give full approval to the movement for the building of an inter-American highway and to recommend to all government members of the Pan American Union that they cooperate in the prompt realization of the project. The Pan American Confederation for Highway Education was formed to carry out the recommendations of the conference.

The subject of an inter-American highway was brought before the Committee on Foreign Affairs, which held hearings on the subject, after which



Project 19—Road 2—Hamilton County—Rock Base.

Congress passed a joint resolution, which was approved on May 4, 1928, requesting the President to direct the several governmental agencies to lend such cooperation and assistance as would be feasible and appropriate.

President Coolidge in his message to the second session of the 70th Congress reiterated his statement to the first session:

"In my message last year I expressed the view that we should lend our encouragement for more good roads to all the principal points on this hemisphere south of the Rio Grande. My view has not changed. The Pan American Union has recently endorsed it. In some of the countries to the south a great deal of progress is being made in road building. In others engineering features are often exacting and financing difficult. As those countries enter upon programs for road building we should be ready to contribute from our abundant experience to make their task easier of accomplishment. I prefer not to go into civil life to accomplish this end. We already furnish military and naval advisers and following this precedent we could draw competent men from these same sources and from the Department of Agriculture.

"We should provide our southern neighbors, if they requested it, with such engineer advisers for the construction of roads and bridges. Private interests should look with favor upon all reasonable loans sought by these countries to open main lines of travel. Such assistance should be given especially to any project for a highway designed to connect all the countries on this hemisphere and thus facili-

tate intercourse and closer relations among them."

President Coolidge's recommendations were embodied in a joint resolution passed by Congress and approved on March 4, 1929, authorizing an appropriation of \$50,000 to enable the Secretary of State to cooperate with the several governments—upon their requests—in the reconnaissance surveys to develop the facts as to the feasibility of possible routes, the probable cost, the economic service and such other information as would permit a visualization of the whole undertaking of financing and building an inter-American highway. The Secretary of State delegated this work to the U. S. Department of Agriculture, which referred it to the Bureau of Public Roads.

The Second Pan American Congress of Highways met at Rio de Janeiro, August, 1929. The 1927 meeting had been postponed to this date. The Congress suggested that each country prepare a complete study of its highway system plan in order to meet the needs of intercommunication of its political subdivisions and to provide the most convenient junctions with the highway systems of the neighboring countries. It also suggested that construction of new highways should follow closely a well-studied program, continuously maintained.

It also recommended to the different governments that when planning or increasing their systems of improved highways, they should adopt the scheme that is most convenient for international connections, and, in road construction, should give preference to these connecting highways.

(Turn to Page 23.)

PAVING WORK IS NOW UNDER WAY ON ROADS TO SOUTH OF THOMASVILLE

With the grading work and paving going on upon various highways south of Thomasville, motorists traveling from this city to Tallahassee, Fla., are using the route by way of Monticello, Fla. There is a fine sand and clay road to Monticello, and twenty-seven miles of paved highway from there on Florida Road No. 1 to Tallahassee. The entire trip is only a half dozen miles longer than it is by the direct Thomasville and Tallahassee highway, on which there is a considerable detour.

Paving contract has been let for the Florida part of the Thomasville and Monticello road, however, and that route will be interfered with in a week or two, and paving from Miccosukee, Fla., eighteen miles below here, to the junction with the Monticello and Tallahassee paved road, is to start about August 1, and will cut off another of the routes to Tallahassee.—Times-Union.

DELEGATES TO INTERNATIONAL CONGRESS

(Continued from Page Nine)

attention with the exhibits of the material producers, such as concrete, asphalt, brick, iron and steel reinforcing. Other exhibits will be office equipment for highway departments, traffic signals and signs, trade publications, literature, motion pictures and catalogs of manufacturers which will cover every phase of road machinery and materials.

During the entire week of the congress the exposition will be open daily, and the demonstrations of almost every type of road machinery will continue under simulated working conditions.

Following the formal opening of the exposition on Tuesday, Oct. 7, a luncheon will be tendered by the American Road Builders' Association to all present, with the foreign delegations as honor guests.

Interesting comparisons of the status of road construction and usage are afforded by figures compiled by the Department of Commerce, automotive division.

As against the United States area of one square mile to each mile of road, improved and unimproved, Spanish Guinea has 1,003.60 square miles; Arabia has 947.86; Tripolitania has 878.05; Alaska has 310.66; Siam has 306.03; and British Guiana has 275.32.

Smaller areas per mile of roads are shown by several nations, and the honors in this class go to Japan with 0.30 square miles of area to each mile of road, and Gibraltar, which has 15 miles of roads and 2 square miles of area, or a percentage of 0.13.

Compared with the United States registration of one automobile to each 4.6 of population, there is Afghanistan with one motor vehicle to each 17,778; China, one to each 12,258; and the Solomon Islands, with one to each 10,750.

Among the far-off nations which already have announced official participation in the International Road Congress and Exposition are Algeria, Nigeria, Morocco, Indo-China, Syria and Lebanon. It is expected that all the important nations of the world will be represented at this first world road congress held in the United States.

Our federal government representatives in every foreign station are assisting in distributing news of the congress and stimulating interest in world-wide attendance among highway engineers and government officials.

Soft Boiled

"Where did you get those big, tender, sympathetic eyes?" she cooed.

"Oh," replied the sailor, "they came with my face."—Our Navy.

Innocent Mistake

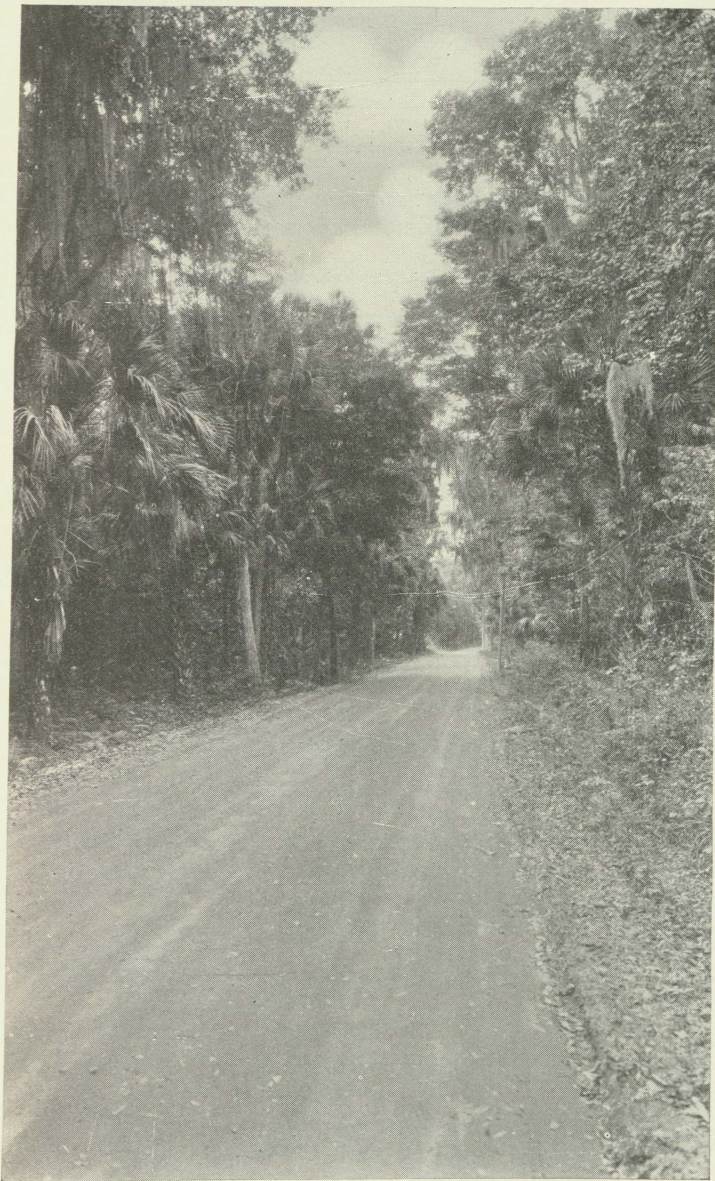
"Oh, Elinor, your dog has killed one of Reggie's prize roosters."

"Darling, I'm so sorry. But you mustn't blame poor Fido—how was he to know that it was a prize rooster?"—Sydney Bulletin.

When Blossoms Fade

"My fiancée spends too much money on flowers; every day he comes with an expensive bunch. I wish I could get him out of it."

"Never mind; you'll soon be married."—Fliegende Blaetter (Munich.)



A Glimpse of Natural Florida Beauty.



Project 529—Road 1—Suwannee County.

NOTE: The "Status of Construction" table which usually appears here is omitted this month because the Engineering Department has not had time to compile and furnish same to us.

Contracts Awarded by State Road Department

JANUARY 1st., 1930, TO JULY 25, 1930

Proj.	Road	County	Contractor	Length Miles	Length Feet	Contract + 10%	Type
70	5	Charlotte	Tampa Shipbldg. & Engr. Co.	75		\$ 45,676.40	Bascule
73-B	17	Polk	Cone Bros. Const. Co.	305		43,984.54	Conc. Bridge
757-B	2	Polk	Florida Bridge & Const. Co.	117		15,234.78	Conc. Bridge
758-B	2	Polk	Cone Brothers Const. Co.	436		59,267.06	Conc. Bridge
20	1	Holmes-Washington	Florida Basic Rock Co.	2.0		19,800.00	Rock Base
62-A	24	Osceola	L. B. McLeod Const. Co.	5.22		123,676.65	R. B. S. T.
73-A	17	Polk	Wm. P. McDonald Const. Co.	3.66		88,283.19	Mac Asphalt
63-C	4	Broward	R. G. Lassiter & Co.	13.24		470,941.54	Concrete
74	2	Orange	Manly Const. Co.	14.34		387,032.94	Asp. Concrete
698	19	Leon	H. E. Wolfe Const. Co.	12.45		276,425.45	Concrete
65	5	Hillsborough	C. M. Moore Const. Co.	.30		23,780.90	R. B. S. T.
721-B	3	Putnam	L. M. Gray	.25		18,829.00	R. B. S. T.
835	5	Marion-Citrus	Manly Const. Co.	.15		4,439.71	R. B. S. T.
40-B	4	Broward	L. M. Gray	.31		10,484.43	R. B. S. T.
68-A	4	Broward	S. P. Snyder & Sons	.37		28,972.93	R. B. S. T.
587-B	5-A	Suwannee	Duval Engineering & Contr. Co.	.34		17,736.22	R. B. S. T.
876-A	78	Duval-St. Johns	Standard Dredging Co.	8.00		81,574.76	Shell Base
758	2	Polk	A. E. Campbell	.10		2,095.74	R. B. S. T.
500-B & C							
515	20	Bay-Jackson	Marianna Lime Products Co.	29.43		328,212.85	R. B.
750	14	Gilchrist	L. M. Gray	12.26		109,936.23	R. B.
669-Y	27	Collier	Fred D. Beasley, Inc.	10.55		22,320.49	Surf. Treatm't.
769	5	Lee	Fred D. Beasley, Inc.	1.89		26,988.64	R. B.
870	143	Palm Beach	Central Fla. Const. Co.		135	8,790.26	Timber
766	10	Bay	Fla. Bridge & Const. Co.		555	4,461.47	Timber
688	10	Bay	R. J. Arrington & Son		60	396.16	Timber
767	10	Bay	J. U. Fletcher		45	751.43	Timber
669-C	27	Dade	Everglades Const. Corp.	9.48		13,183.50	Rock Cap
911	68	Bradford	Duval Engr. & Contr. Co.	3.50		24,069.54	Rock Base
714	28	Union	F. W. Long & Co.	9.14		88,172.06	Rock Base
62-A	24	Osceola	L. B. McLeod Const. Co.	5.87		104,950.53	R. B. S. T.
62-D	24	Osceola	L. B. McLeod Const. Co.	12.66		307,070.29	R. B. S. T.
708	11	Jefferson	Duval Engr. & Contr. Co.	7.98		130,331.33	R. B. S. T.
806-A	25	Hendry	E. F. Powers Const. Co.	11.00		199,911.51	R. B. S. T.
57	3	Nassau-Duval	R. C. Huffman Const. Co.	3.40		173,830.52	Embankment
715-B	28	Union-Bradford	Fla. Bridge & Contr. Co.		783	79,872.68	Conc. Bridge
66	5	Sarasota	R. C. Huffman Const. Co.		459	128,288.17	Conc. Bridge
75	27	Collier	Central Station Equip. Co.		561	125,332.26	Conc. Bridge
898	4-A	Monroe	The Belcher Oil Co.	5.00		5,982.24	Surf. Treat'd.
Totals				182.89	3531	\$3,601,088.40	

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CREOSOTE

WOOD PRESERVERS SINCE 1878
EPPINGER & RUSSELL Co.

U. S. OPENS FIELD OFFICE IN PANAMA TO AID INTER-CONTINENTAL HIGHWAY

(Continued from Page 20.)

Following the Second Pan American Congress, the Inter-American Highway Congress met in Panama City in October, 1929, and proposed the formation of the inter-American Highway Commission to plan and construct a highway connecting the Americas.

The approval, on May 27, 1930, of an act to provide for a ferry and a highway near the Pacific entrance of the Panama Canal authorizes a vital improvement in the proposed highway. The Canal Zone and the canal have divided the Republic of Panama into north and south sections. No bridge over the canal exists, and to date only a temporary ferry has been operated. The ferry has not been convenient to the capital city of Panama. The act recognizes a treaty obligation to provide a convenient and effective permanent crossing of the canal and the canal zone, to provide adequate physical connection between the two sections of the Republic of Panama. The act authorized an initial appropriation of \$1,000,000 for the ferry and highway.

Birds of a Feather

Two weary strangers met on the road one day. One was a man who had been in business and extended credit to everybody without getting a credit report.

The other was also broke.

—Glendale (Calif.) Merchants Bulletin.

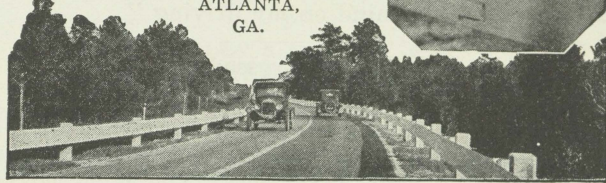
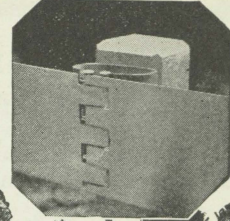
SMOOTH RESILIENT STRONG

With its interlocking spring connection holding the broad smooth rail six inches from the post, and with the resiliency of the rail itself, the Resiliflex Road Guard has the ability to withstand tremendous shocks with the least possibility of damage to motorists, vehicles or the rail itself. Write for literature.

RESILIFLEX
ROAD GUARD

NATIONAL TRAFFIC GUARD CO.

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PRINTING

Every printing need for the road builder, economically produced. Accuracy, quality and quick action have made for this firm an enviable reputation.

APPLEYARD'S

Foremost Printers of Florida
Tallahassee, Florida

The Moderns

Maid: "You know the old vase you said had been handed down from generation to generation?"

Mistress: "Yes."

Maid: "Well, this generation has dropped it."

Success Recipe

A young man just out of college sought the service of a hard headed and successful business man.

"Tell me, please, how I should go about getting a start in the great game of business."

"Sell your wrist watch and buy an alarm clock," was the laconic reply.

Specialization

Fair Maid: "Oh, sir, what kind of an officer are you?"

Officer: "I'm a naval surgeon."

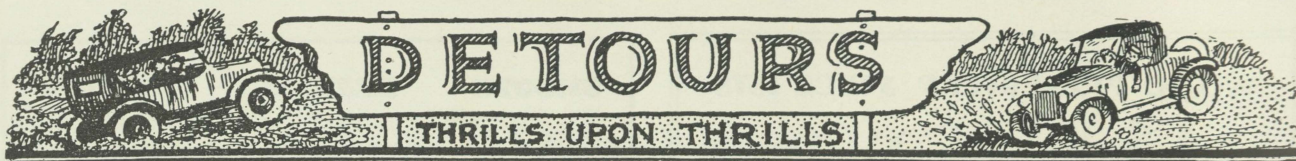
Fair Maid: "Goodness, how you doctors specialize."

Accuracy!—Well, Nearly

The wife had been put on the budget plan. At the end of each month she and her husband would go over the accounts together. Every once in a while he would find an item, "L. O. K., \$3," and a little further on, "L. O. K., \$6."

Finally he said, "My dear, what is this—'L. O. K.'?"

"Lord Only Knows," she replied.—Boston Transcript.



Interference

"Do you ever take Mrs. Glump for a ride in your car?"

"No, with her jabbering in the back seat, my wife couldn't keep her mind on my driving."

Fingers Crossed

He had risked his life to rescue the girl from a watery grave and, of course, her father was grateful.

"Young man," he said, "I can never thank you sufficiently for your heroic act. You incurred an awful risk in saving my only daughter."

"None whatever, sir," replied the amateur lifesaver, "I am already married."—Chicago News.

Oh Doctor!

The sweet young thing had broken her glasses. She took the remains back to the optometrist. "Will I have to be examined all over again?" she asked.

"No," he replied, "just your eyes."

Poor Witness

Lawyer (to flustered witness): Now, sir, did you or did you not, on the date in question, or at any other time, say to the defendant or anyone else that the statement imputed to you and denied by the plaintiff was a matter of no moment or otherwise? Answer me yes or no."

Witness: "Yes or no what?"

Friend of the Stork

The doctor of a country village had two children who were acknowledged by the inhabitants as being the prettiest little girls in the district.

While the two children were out walking one day, they happened to pass quite near two small boys; one lived in the village and the other was a visitor.

"I say," said the latter to his friend, "who are those little girls?"

"They are the doctor's children," replied the village boy. "He always keeps the best for himself."—Montreal Star.

"I was so embarrassed at the show last night with Jack. All during the dance of the seven veils he kept snapping his fingers and calling, 'come, seven.'"—Mugwump.

"Home life is a very rare part of the life of a politician," says an M. P. He naturally likes to be where there is at least a remote chance of somebody listening to what he has to say.—London Opinion.

"Do you ever agree with your wife?"

"I did once. When our house burned down we both tried to get out of the front door at the same time."—Nebelspalter, Zurich.

"I went to the dentist's yesterday."

"Does the tooth still ache?"

"I don't know. He kept it."—Auckland Weekly News.

Oop!

Ring Lardner, who once telegraphed his regrets that he couldn't attend a dinner because it was the children's night out and he had to stay home with the nurse, offered this alibi in dodging another affair:

In response to an invitation to a press-agents' dinner Lardner wired: "I wish I could make it, but I cannot, and it is a matter of real regret, as I have always yearned to be at a banquet where most of the speeches were in a foreign tongue."—Daily Mirror.

Look Out, Judge!

Four things belong to a judge: To hear courteously, to answer wisely, to consider soberly and to decide impartially.—Socrates.

Busy Wasp

"Oh, Gerald, I've been stung by a wasp."

"Quick, put some ammonia on it."

"I can't, it's gone."—Passing Show.

Making It Hot

Tillie: "But, mother, I can't marry him. He's an atheist and doesn't believe there is a hell."

Mother: "Go ahead and marry him, dear, and between us we'll convince him he's wrong."

The course of social events in Texas, as noted by the Annona News:

"If it rains this evening the social will be hell tomorrow evening."

Doctor (angrily): "You object to my bill, but you forget that I had to pay you a great number of visits."

Ex-Patient: "Och, aye; but did I no gie the malady tae the whole neighborhood?"

The Taints Have It

District Attorney Bob Stuart objected to Rogers calling the state's evidence "tainted testimony." His objection was sustained by Judge George F. Hosey, before whom the case is being tried.

"The testimony isn't tainted," Stuart declared.

"'Tis," replied Rogers.

"Tain't," voiced Judge Hosey.—Ft. Worth Press

Price of Silence

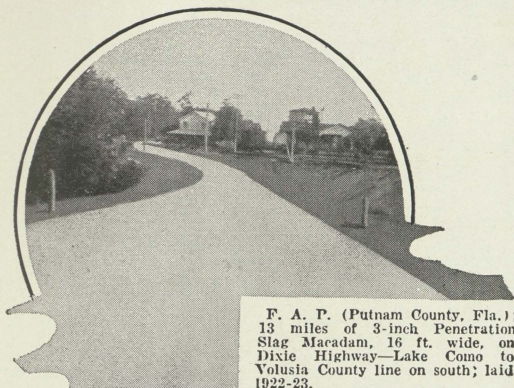
Father of Bride—"My daughter will have a dowry of \$50,000, but of course I must make inquiries of your antecedents and prospects."

Suitor—"Don't make any inquiries and I will take her for \$25,000."—Dorffbarbier (Berlin.)

He'd Be Missed

Judge—"Now, I don't expect to see you here again, Rastus."

Rastus—"Not see me again, Jedge? Why, you-all ain't goin' to resign, is you, Jedge?"—Capper's Weekly.



F. A. P. (Putnam County, Fla.);
13 miles of 3-inch Penetration
Slag Macadam, 16 ft. wide, on
Dixie Highway—Lake Como to
Volusia County line on south; laid
1922-23.

TYPE	Sq. Yds.
Amiesite	300,760
Asphaltic Concrete	2,482,699
Bituminous Macadam	7,620,103
Portland Cement Concrete..	5,245,771
Sheet Asphalt	3,385,362
Surface Treatment	26,499,802
Warrenite Bitulithic	1,070,022
Waterbound Slag Macadam .	158,400
Total (4,430 Miles)	46,604,519

Doesn't that prove on the face of it that "Ensley Basic Slag" has met rigid state and federal aid specifications—and has consistently shown a favorable "in the road" cost?

4,430 miles of SLAG roads and streets

A REPORT of our company to the National Slag Association covering the period from 1916 to 1929 shows that

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BASIC SLAG
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has been used throughout Florida and seven other Southeastern States in a total of 4,430 miles of street and highway paving — three times the distance between Miami and New York. This mileage is divided as follows in the principal types of paving:

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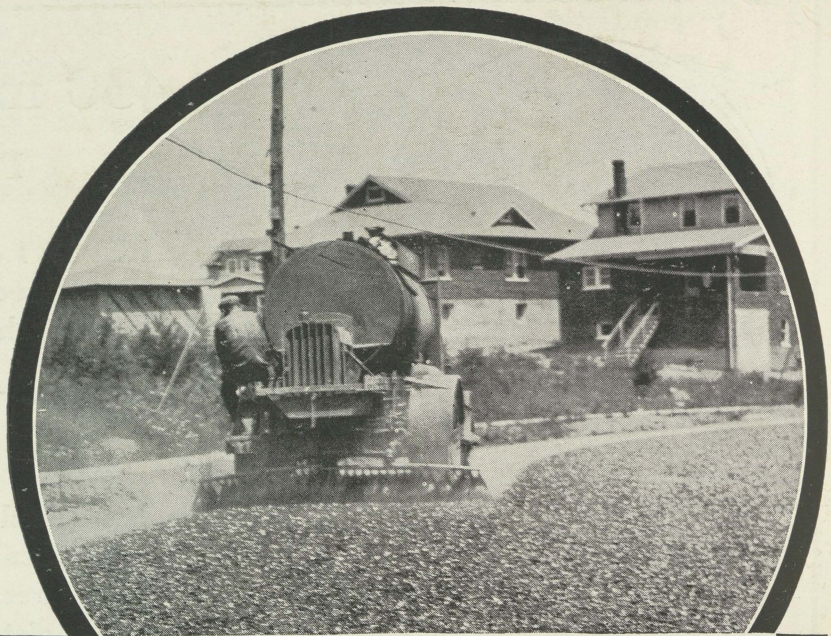


THE H. & W. B. DREW CO.

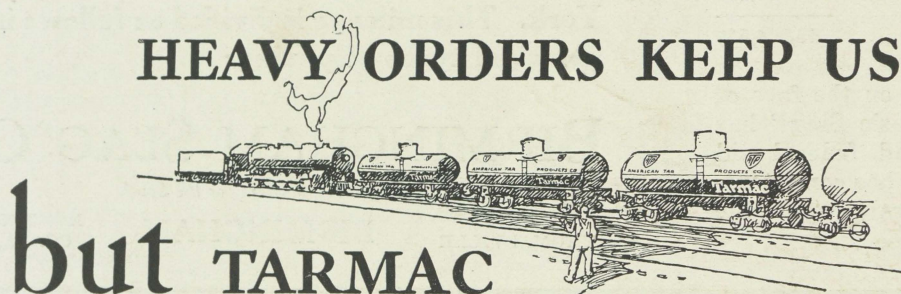
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JACKSONVILLE, FLORIDA

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This year, as in each succeeding year in the past, Tarmac shipments are running ahead in volume, but our manufacturing and transportation facilities allow us to guarantee prompt shipments of your requirements from now until your highway work ends.

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